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# THE BRICKBUILDER

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## THE BRICKBUILDER.

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### ADVERTISING.

Advertisers are classified and arranged in the following order:—

	PAGE		PAGE
Agencies.—Clay Products . . . . .	II	Cements . . . . .	IV
Architectural Faience . . . . .	II	Clay Chemicals . . . . .	IV
“ Terra-Cotta . . . . .	II and III	Fire-proofing . . . . .	IV
Brick . . . . .	III	Machinery . . . . .	IV
“ Enameled . . . . .	III and IV	Roofing Tile . . . . .	IV

Advertisements will be printed on cover pages only.

PROFESSOR A. D. F. HAMLIN contributes to the “School of Mines Quarterly” of Columbia University a very interesting discussion of the much-mooted construction of the dome of the Pantheon, Rome. It has been assumed, chiefly on the authority of Piranesi and Viollet-le-Duc, that the construction consisted of a series of arched ribs connected by relieving arches, the intermediate spaces being filled solid with concrete. The fact that the caissons which appear on the inner surface of the dome do not seem to in any wise agree with the assumed system of construction has been one of the enigmas not easy of solution. Professor Hamlin's conclusion is quite a striking one, namely, that the dome as constructed in the time of Hadrian was internally a smooth vault and that at some time subsequent to its completion, very probably in the time of Septimius Severus, the existing panels were hewn out of the brickwork and the present surface coat of stucco applied thereto. This is a very interesting conclusion and seems to go further towards according the conflicting facts than any other theory proposed, but its final demonstration would be impossible unless the entire inner surface of the dome could be stripped and the masonry examined in minute detail. In many respects this is the most interesting example of masonry construction in the world. Viollet-le-Duc's hypothetical solution of the problem was an extremely ingenious one and was thoroughly in accord with Roman traditions and with the construction as observed in other similar monuments, and if the dome were to be repro-

duced in modern times it is doubtful if any improvement could be made upon Viollet-le-Duc's scheme. But unfortunately it does not fit the exact conditions, and Professor Hamlin's investigations, which were conducted both on the spot and by comparison with other investigations of the monument, constitute a very important addition to our literature upon the Roman vault construction.

ABOUT one hundred tenement houses six stories in height are now being built according to the provisions of the new tenement-house law, in New York City, at a total cost of \$4,104,000. Nearly all of these houses will be about 40 x 100 feet on lots 50 x 100 feet. Only a few tenement houses are being erected on lots having a twenty-five foot frontage. For a time it looked as if operators in this class of buildings had shut up shop, says a contemporary. In the last few months, however, trading in tenement-house properties has been vigorous. This fact, together with the vast sum of money the operators have decided to invest in the building of model tenement houses, is taken as proof positive that there is no longer any doubt that the modern tenement house can be made to pay as well as the old type of building.

AT a special meeting of the Philadelphia chapter of the American Institute of Architects called to take action upon the death of Mr. Walter Cope the following resolutions were adopted:

*Resolved*, That in the overwhelming sadness which the death of our friend and associate, Walter Cope, has cast about us we still rejoice in the beauty of his life and his labors, which leave behind them so precious a memory and so stimulating an example. Deeply skilled in his art, there were brought to him from far and near problems of ever-increasing difficulty and importance. He bore joyously the burden of these many tasks and stood before us steadfast in the discharge of duty, untiring in the pursuit of excellence and beauty, firm in upholding a noble standard of conduct. And yet it is not his work as an architect, distinguished as it is by volume and quality, that leaves with his companions the deepest impression of him, but rather his constant sincerity, his limpid truthfulness, his spontaneity and frankness, his joy in art, his splendid scorn of wrong.

*Resolved*, That in the death of Walter Cope the architects of America have lost one of the ablest of their number, and that we, his immediate associates, mourn him, not alone as a fellow artist, but as a friend tried in many ways and true in all.

These resolutions will surely find an echo in the hearts of all the numerous friends Mr. Cope has left behind him. It is seldom that a career has been so uniformly successful, not merely in the purely architectural sense, but also in the finer qualities of personal character. His practice was individual to a marked degree, and he possessed the rare balance of mind between the artistic temperament and the severely practical bent which enabled him to give to his architecture the stamp of the very highest character.

## The Decoration of the Ceppo Hospital at Pistoia.

BY ALLAN MARQUAND.

THE Ceppo Hospital at Pistoia was founded as early as 1218, and for several centuries was controlled by Augustinian brothers of the society known as Santa Maria del Ceppo, or St. Mary of the tree trunk. In the closing years of the fifteenth century the city of Pistoia suffered much from fire and plague, also from political dissensions. The Ceppo Hospital suffered with the rest, until in the early years of the sixteenth century its administration passed into the hands of the Florentines and Frate Leonardo Buonafede was placed in charge. Buonafede was wealthy and a patron of art. As abbot of the monastery at Badia Tedalda he had donated to that church three altarpieces of Robbia ware, and again at Galatrona



CEPPO HOSPITAL, PISTOIA.

he had presented the church with a baptismal font and other objects made by Giovanni della Robbia. Buonafede was appointed by Leo X in 1522 the administrator of the Hospital of S. Maria Nuova at Florence and of the Ceppo at Pistoia. In Florence the hospitals of the Innocenti and of San Paolo were provided with loggie the spandrels of whose arches were decorated with medallions by Andrea della Robbia. It was therefore natural that his first work for Pistoia should have been to order for the Ceppo Hospital a loggia decorated with glazed terracotta. It is probable, therefore, that the loggia of the Ceppo Hospital does not antedate 1522, and it must have been built by 1525, as this date is found on one of the medallions which decorate it. This date, however, does not imply that the decorations were all in place at that time. In fact the archives of the hospital indicate that payments were made to Giovanni della Robbia from 1525 to 1529. The amounts and purports of these payments,



MEDALLION OF THE ANNUNCIATION, BY GIOVANNI DELLA ROBBIAS.

Milanesi informs us, were recorded in a book which is now lost; hence Giovanni's share in the decoration of this hospital must be determined by the characteristics of the work itself.

Do the records throw any further light on this subject? We might think of connecting the name of Benedetto Buglioni with these decorations. He had already been employed in the decoration of the Ceppo Hospital. At least we assume that Milanesi, in a note to Vasari's account of Luca della Robbia, derived from some documentary source the information that Benedetto Buglioni made in 1510 a "Nostra Donna" for the façade of the hospital. Possibly this is the lunette, representing the Coronation of the Virgin, above the door of the hospital chapel. He also made in 1515, to celebrate the arrival



GIVING DRINK TO THE THIRSTY, BY FILIPPO PALADINI.

of Leo X, figures of Charity and Hope, and we note that these figures occur also in the Pistoia frieze. But Benedetto Buglioni died March 7, 1521, a year before Buonafede planned a loggia for the Ceppo Hospital. His pupil and successor, Santi Buglioni, lived as late as 1568, and the records of S. Maria Nuova imply that he was also employed (at what date?) at Pistoia. How far he may have been concerned in the decorations of the Ceppo Hospital does not appear. The records therefore, so far

as published, leave the question of authorship an unsettled problem. Hence we find the Ceppo frieze variously ascribed to Luca and Andrea della Robbia (P. Contrucci and G. Pellegrini), to Agostino della Robbia (the *libro d'oro* of the hospital), to Giovanni della Robbia (Bode, Marcel Reymond), to Giovanni and his brothers (Murray), to Giovanni aided by his sons or by Santi Buglioni (Cavacalluci and Molinier).

What have the decorations themselves to say in regard to their origin? If we take more than a casual glance at these striking and most effective decorations, we cannot fail to perceive in them the handiwork of three different artists. The medallions are evidently the work of a single mind. They form in themselves a complete scheme of decoration. Here are medallions of the Annunciation, Visitation and the Assumption, in honor of the patroness, Santa Maria del Ceppo; a medallion with the Medici arms, in honor of the family through which

that of the medallions, and its color scheme, notably the yellows, quite different. The medallions are completely glazed, whereas the frieze suggests a style of later period, since the faces and hands, and in one panel the entire figures, are unglazed. The medallions are conventional in spirit and feeble in execution. The frieze is vigorous, well composed, in general well modeled, realistic and full of pathos. The contrast in fact between frieze and medallions is so striking that we are surprised to find writers still attributing the entire decorations to the same author.

Having satisfied ourselves that the frieze is not a work by Giovanni della Robbia, let us consider it by itself and in its relation to other monuments. If we examine the frieze with reference to its style we cannot fail to notice that the last relief to our right is to be distinguished from all the rest. Not only are the figures unglazed, but the composition is more crowded, and the principal figure of the other panels is here changed. The



CEPPO HOSPITAL, PISTOIA.

the hospital derived security and prosperity; a medallion containing the arms of the hospital; and at either end half medallions making together the arms of Pistoia. This is a scheme such as Leonardo Buonafede might well have planned for the decoration of the loggia. It may be noted that these medallions are completely glazed, and that both in modeling and in color they are very different from the frieze above them. We do not have far to go to discover their authorship. In the Museo Nazionale of Florence there is a large altarpiece of the Nativity, signed by Giovanni della Robbia in 1521, and in the Via Nazionale is his masterpiece, the Tabernacolo delle Fonticine, executed in 1522. In the Pistoia medallions, a few years later, Giovanni reproduces the same Virgin, the same angel, the same details of ornament. Even without the suggestion afforded by the documents, we could not fail to recognize in these medallions most characteristic examples of the workmanship of Giovanni della Robbia.

The style of the frieze is by no means the same as

authorship of this panel is known by documentary evidence. Contrucci publishes (*Monumento Robbiano nella Loggia dello Spedale di Pistoia*, p. 87, note 1) from the archives of the hospital, records of payments made to Maestro Filippo di Lorenzo Paladini from May 14, 1584, to August 2, 1586, for making various figures, the final entry defining the purpose, viz., for the completion of the frieze of the loggia. During this period, 1584-1586, Bartolomeo Montechiari was in charge of the hospital, and it may be that he is portrayed here as the central figure. Filippo Paladini was a Florentine painter, noted, according to Lanzi, for his graceful figures and excellent coloring. His panel, however, lacks the clearness and dramatic force of the others, from which it differs also in technical execution. So far as the question of authorship is concerned, we have reached this conclusion: to Giovanni della Robbia may be ascribed the medallions, and to Filippo Paladini one panel of the frieze.

The remainder of the frieze is the work of a realistic



sculptor by no means blind to decorative effect. The general design is evident. Over each opening of the loggia is represented one of the Seven Deeds of Mercy. These are divided from each other by narrow upright panels representing figures of Virtues. At the extreme ends of the frieze, instead of Virtues we find this inscription, half at one end, half at the other: *Beati mundo corde quoniam ipsi deum videbunt. MDLXXVI.* Whether this date be that of the original frieze or only of its completion by Paladini we cannot now determine. The subjects represented succeed each other in the following order: On the short side of the loggia, near the church, we find a fine panel on which is represented the Clothing the Naked. At the corner is a sphinx bearing the arms of the hospital. On the façade of the loggia we find, reading from left to right, Receiving Strangers (Prudence), Visiting the Sick (Faith), Visiting the Prisoners (Charity), Burying the Dead (Hope), Feeding the Hungry (Justice), Giving Drink to the Thirsty.

It is unnecessary that we should describe these in detail. It is evident that the sculptor understood the value of varying his compositions, his relief, his coloring, and that he had a deep realization of human life and character. Some of these figures are doubtless portraits of well-known persons. The monk who is the principal figure in five of the panels may well be Leonardo Buonafede, donor of the loggia. He was a Carthusian monk and here wears the Carthusian robe and dark cowl. In a funerary relief by Francesco da San Gallo at the Certosa, Buonafede is

figured in one panel as a Pilgrim and in another as a Prisoner, and St. John the Baptist is evidently the Stranger whose feet are being washed by the charitable Buonafede.

But who is the central figure clad in blue in the panel of the Strangers, and who is the distinguished figure at the front of those who are about to bury the dead? These are questions which some day may be answered. The sculptor of this frieze, whoever he may have been, seems to have received some of his inspiration at least from Florentine sources. The first figure to the left, now headless, in the Clothing of the Naked, was evidently made by some one who had seen and admired Michelangelo's David (1503), and the costume of the nuns, in the same panel, is said by Contrucci to be that worn in the Hospital of S. Maria Nuova, adopted by the nuns of the Ceppo Hospital in 1540.

A broad survey of the works of the Robbia school still leaves the authorship of the frieze an unsettled problem. Luca, Andrea and Giovanni della Robbia are not to be thought of in this connection. Could its author have been one of Giovanni's brothers? Certainly not Fra Ambrogio, author of a miserable Nativity at S. Spirito, Siena; certainly not Luca, the younger, author of a signed Madonna in the Vatican; certainly not Fra Mattia, author of a large altarpiece at Monte Cassiano. Was it Girolamo, who went to France, where he decorated the Château de Madrid for François I? Unfortunately nothing is left of his works which we can apply as a test to this question. Could it have been either Benedetto or Santi Buglioni? A few monuments, more or less analogous to the Pistoia frieze,



CLOTHING THE NAKED.



DETAIL FROM VISITING THE PRISONERS.

represented as bishop of Cortona wearing a miter, but we cannot fail to recognize that he has the same features as those of the monk of the Ceppo frieze. The priest with a nimbus in the Visiting the Prisoners may be the sainted Pistoian bishop, Beato Andrea Franchi, who did much to relieve his people in time of distress. Christ is



DETAIL FROM BURYING THE DEAD.

remain which may be attributed with more or less security to these sculptors. But on the whole it may be said that neither Benedetto nor Santi Buglioni has elsewhere shown anything like the power exhibited in this frieze. Hence for the present the authorship of the frieze remains for us an unsolved problem.



## THE TOWN HALL SERIES NO III.

●● PENNSYLVANIA TYPE.  
BY ALBERT KELSEY.



**S**POTLESS TOWN is brand new. But unlike Carnegietown, furnaces are but the means of life, not the objects to which life is sacrificed.

It is traversed by William Penn Road, which, while within the corporate limits, is an up-to-date, symmetrical, tree-lined city street, paved with vitrified brick, drained with the latest type of sewer, and tunneled with the most accessible man-run for the installation of pipes and wires. It is sprinkled by day, flushed by night, and yet, notwithstanding its fierce electric lights and rapid traffic, it remains an organic part of the old dry, dusty turnpike.

The "pike" is very old. It takes its way across the fertile fields of York and Lancaster counties, whose inhabitants still perpetuate ancient rivalries by emblematic use of the red and white roses of the royal families after which their lands were long ago named.

The settled, substantial character of the country and a hundred unmistakable signs like the elsewhere obsolete tollgate, link the present to that strange twilight time filled with fantas-



PLAN OF CIVIC CENTER.

## PROGRAMME.

The problem indicated by the following programme is a town hall such as would be requisite in a village of five or six thousand inhabitants.

It is supposed to stand on the public square of the town, which square is quite closely built up with such buildings as would naturally be found in a locality of this kind. If there are any differences in grade, the town hall is supposed to occupy the highest portion of the land.

The contributors in this series represent different sections of the country, and each design will indicate not only in the matter of arrangement of plan but also in point of architectural style, the sort of thing

tic shapes of imagination and pious enthusiasm, to which belongs the Ephrata Monastery with its gowned and hooded Protestants, the nuns and monks employed about monastic duties and occupations, while the brothers harnessed to the plow proved their earnestness upon the rugged earth.

This same primitive spirit appears in the religious character of the settlements of the Dunkards, the Mennonites, or "Manisten," as they are often called in Pennsylvania, and the Moravians. And notwithstanding the English names of the counties, the descendants of these early sectaries remain as a preponderating German element, particularly in the older settlements and in the less accessible regions. But their influence is now less religious than moral. With all the old earnestness of their race they have become the richest and most powerful class in the agricultural community, at once conservative and progressive, accepting the advantages of modern invention, but always insisting that it shall not be at the expense of accustomed ideals of life.

So although Spotless

that would be particularly appropriate for the section of the country in which the building is to be located.

In the matter of accommodations and of the sizes and disposition of the rooms, each contributor uses his own judgment, following out the idea indicated above by preparing designs particularly fitted for the various sections of the United States.

The cost of the building, exclusive of furnishings, should not exceed \$50,000. This sum, while perhaps large, is purposely made so with the idea of laying stress on the necessity of having a building of some richness to represent the town in its corporate capacity.

The idea is simply to suggest an appropriate treatment of a problem that frequently occurs for solution.

Town is not old, it is largely the outcome of a people that has taken time to think.

Instead of a haphazard agglomeration of grimy dwellings strewn along an arid waste of railway embankments, dominated by belching steel works, it is an orderly community and a pleasant place to live in, for here smoke consumers and skillful stoking are made matters of public concern. In fact the whole environment suggests self-reliance and a proud American spirit where manhood is at a premium and "pauperizing philanthropies" are unknown.

A closely built up square, approached by broad, tree-lined streets, forms the civic centre, the treatment of which is the subject of our project.

In the programme the editor has once more shown his discernment and judgment by making actual conditions the real impulse back of each town hall design, and moreover by inviting designers from widely separated localities to solve the same problem with reference to their own local conditions and requirements, an admirable opportunity for contrast and comparison is effected.

In the second of the series Mr. Garden felt strongly the Latin influence of Spain and France, and in consequence his town hall takes on a southern aspect, as the logical character of a building designed as a type appropriate in the southern states.

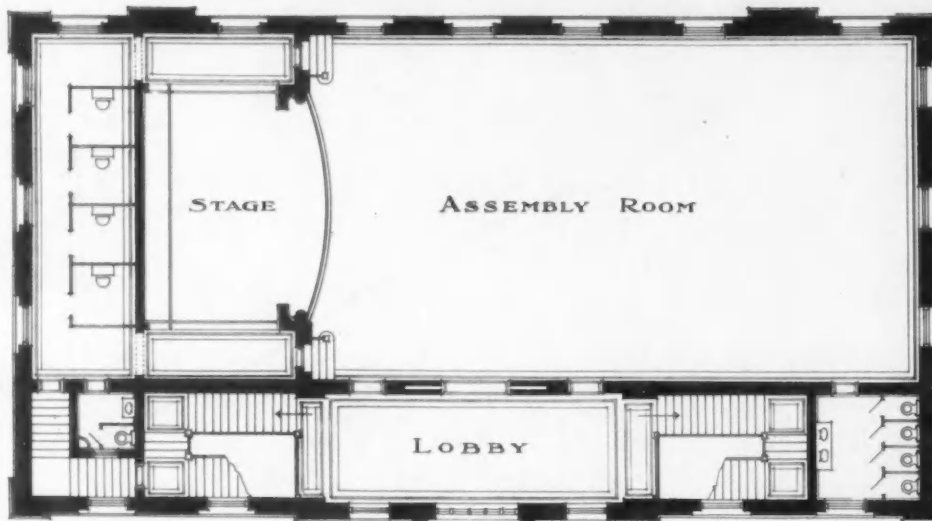
In ours, Pennsylvania history and English and German out-of-door habits are taken into account, and the thought suggested in the programme of an assembly hall to be

used for theatrical and social entertainments is made a keynote to the scheme. This is a happy thought, for within a month at Columbia, Pa., the second largest town in Lancaster County, the advantages of public ownership of a playhouse were conclusively demonstrated. Theirs is leased, season by season. This year the manager offended the decency of the community by billing the town with objectionable posters. A protest was raised, with the result that a special meeting of the town council ordered the advertisements down and closed the Opera House.

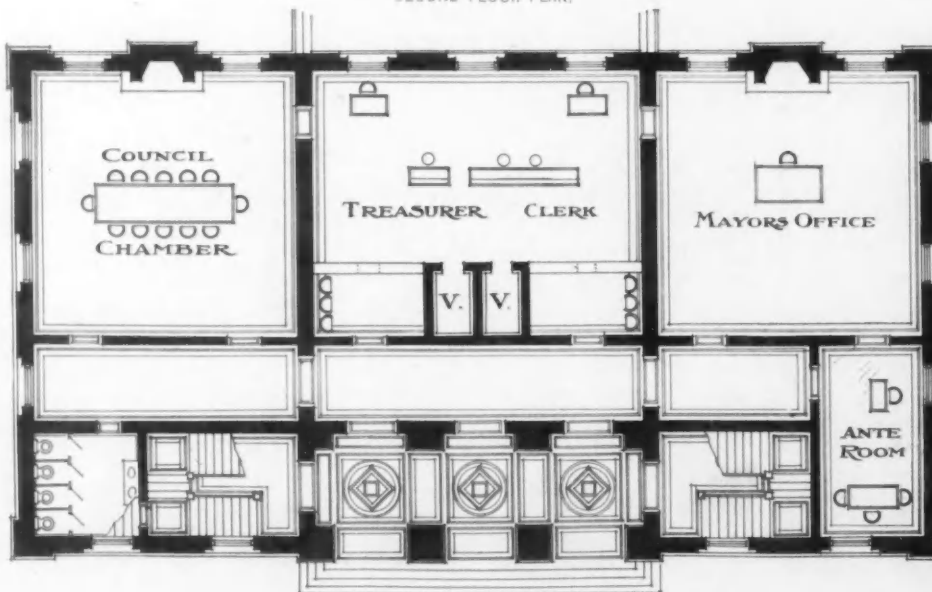
The social life of the community is to be served first, the governmental needs being quite subordinate to it.

With this in view it was deemed of importance to consider the town hall as only a part of a social center which as a whole exercises a daily influence over the population. And this was right, for civic pride attaches itself firmly to Franklin Common, a great open green for outdoor recreation where the band plays, and where the militia drills under the eye

of friends and fellow townsmen. It is a great open space unprotected by forbidding fences, where the boys play ball and where "keep off the grass" signs are unknown. It is a sort of civic country club, whose shaded benches afford resting and meeting places for the people. And so jealously is it guarded that the suggestion to place the town hall upon it raised a storm of protest, leaving no doubt as to the people's *amour propre*, and in consequence, as a conciliatory move, it was decided to even enlarge the appearance of the com-



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.

mon by acquiring the property on the opposite side of Penn Road. Thus by continuing the double rows of trees across this thoroughfare an integral effect was obtained which, moreover, insured a suitable background for the building itself.

The site rises a few feet, its ramped approach showing how a simple building may be set off and given added dignity by skillful grading. Here stands the only statue, directly in front of the town hall and reflected in the lily pool beneath. It is a bronze figure of the public-spirited ironmaster and founder for whom the engirdling park system of the town is named.

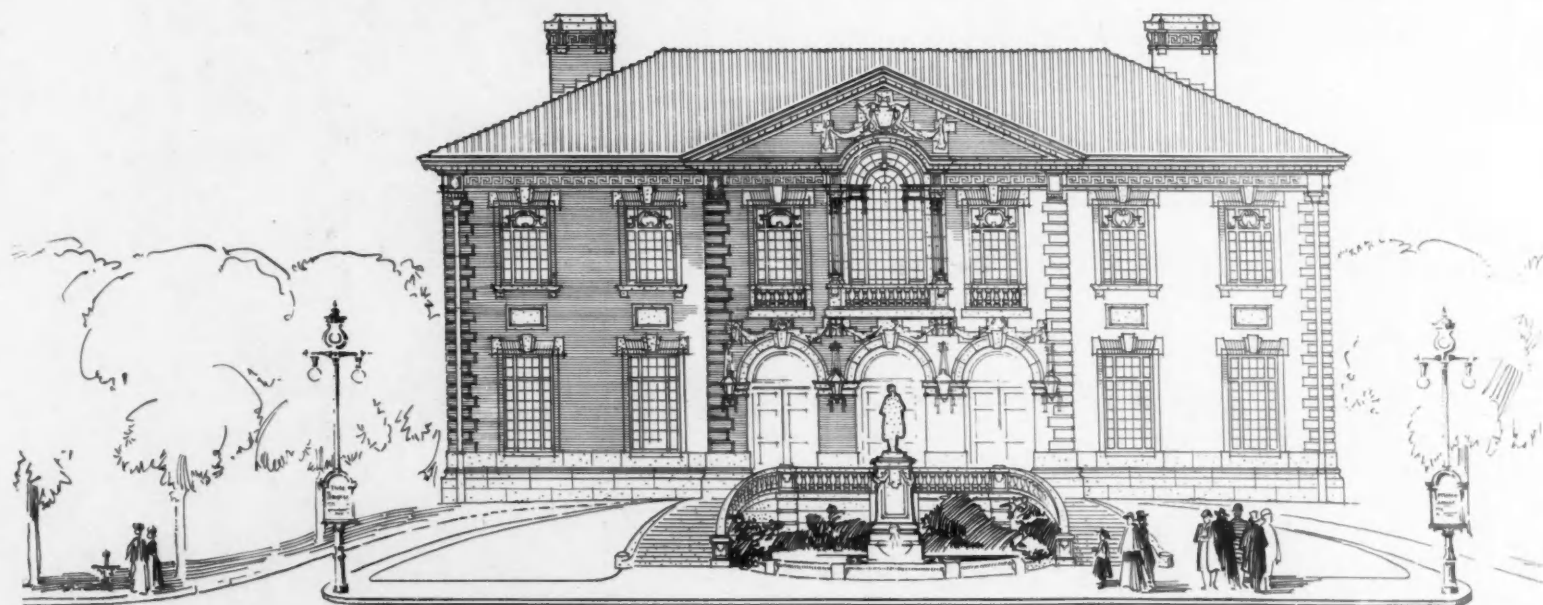
On approaching, driving or afoot, an appearance of perfect orderliness and symmetry is everywhere to be seen. Even the low shrubs, the flowers and aquatic plants within the wing walls and curb of the basin are studied to enhance the architectural effect, and the trees bordering the service road at the rear, as already pointed out,

which extremes of luxury and squalor are nowhere to be found.

Immigration to the great cities receives but few recruits from Spotless Town, and those who go often return, amazed to find how much more it means to them than the metropolis; how much more each inhabitant is entitled to for a minimum tax rate; and how much more healthful it is as a place of residence.

The true sense of proportion which dictated that the town hall should be an all-around benefit by giving importance to its social function, precluded a subordinate entrance to the assembly hall. The triple arches form one main entrance for both departments, though they are independent, each occupying a separate floor.

The character of the building is reminiscently colonial but distinctly modern, wood being largely replaced by white terra-cotta, shingles by tiles, and floor joists by Guastavino arches. Materials of clay are used nearly ex-



TOWN HALL AND ASSEMBLY BUILDING FOR A SMALL CITY IN PENNSYLVANIA. BY ALBERT KELSEY.

frame in the picture, excluding a view of the private properties beyond.

The light-standards with their bulletin boards and other street fixtures are of a uniform special design, and each, according to its function, is placed at the proper interval with great precision. Overhead construction of all kinds is prohibited on the public domain, and hence the tree-lined lawns are unobstructed.

The deep-seated optimism of the people made it a comparatively easy matter for the founder to take advantage of a period of unusual prosperity to command the interest and coöperation of the citizens in his efforts to make a model city of the town; but unfortunately space does not permit a description of all the problems solved nor even a list of the conveniences, embellishments and amusement features which have been made permanent additions to the city system. Suffice it that through him the people came to know the new order of things whereby all, from the richest to the poorest, are brought within a real community of interests in

clusively, and in the decorative treatment faience as beautiful as Luca della Robbia's majolica is freely used to recall the history of the high road, and Moravian tiles of special design record local tradition, while rich glazes revive emblems and make the county arms familiar to all. Mural paintings depict the steel industry upon which the life of the town depends, and a more powerful and sympathetic allegory would be hard to find.

Within and without there is nothing superfluous, nothing without reason and meaning, and as the building proudly faces the common—not the plaza, nor the esplanade, nor the garden, but merely the common—it looks its part and nothing more.

Character is the great thing in life, in art, in city making. Character rules in everything. It is not the result of a whim nor the product of spurious imitation. Character epitomizes conditions, and those of the democracy of Spotless Town are worthy of profound study, notwithstanding this imperfect characterization of them in a design for its town hall.



### Interesting Brick Architecture in Pittsburg, Pa. Domestic.

THE lower part of Pittsburg is shut in on two sides by the Allegheny and the Monongahela rivers, which meet at "The Point" to form the Ohio. Now the lower part of the business section, in early times this district was the residence section. Growth was possible in but one direction, and owing to the lack of transportation facilities a great expansion even in this direction was impracticable. Swept by the fire of 1845, in rebuilding the houses were largely of the city-front type, and many of them show the influence of the Greek revival which was so popular at that time, — simple brick fronts with but little elaboration and that usually around the entrance. Many of them have, too, beautiful examples of iron railings and balconies.

Smoke and dirt had always operated to discourage anything but the simplest exteriors, but in 1886 the introduction of natural gas as a fuel cleared the air for better things; business was encroaching more and more here, street cars were opening up districts heretofore almost inaccessible, and there was a general exodus to these newer districts. But the reaction from the crowded condition of the older town has been permanent, and to-day in new work we have hardly an example of the city front. Incidentally we have hardly an example of the modern French school.

Pittsburg is a city of hills and of many splendid views, too often, it is true, cut off in the distance by a cloud of smoke, but the immediate vicinity of its homes has been neglected and only recently have the services of the landscape architect been sought.



CHILDREN'S PLAYHOUSE AND GYMNASIUM.  
Alden & Harlow, Architects

The accompanying illustrations have been chosen to show some of the more recent work here.

The house at Sewickley, Proctor, Wass & Tufts, architects, is particularly successful, the long ridge being very effective and the proportions between the wood and plaster good, though the appearance would probably have been improved had the plaster been rougher and kept back slightly from the face of the wood. The bricks are laid with joints deeply raked out and window frames set flush with the outside of the wall; the fact that the design of the chimneys is varied adds a small note of interest.

The house at Sewickley by Alden & Harlow is a simple, vigorous treatment of a colonial plan, in which the fineness of detail of colonial work has been avoided, and an interesting feature made of the large chimney at the end. The brick is laid in English bond.

The house at St. James Street and Fifth Avenue, McClure & Spahr, architects, is built with gray brick, the woodwork stained dark brown. There is a simple brick cornice and several bands of brick on edge, which, however, are almost lost, the brick and mortar being of the same color.

In the house near Sewickley by Rutan & Russell the brickwork is laid in Flemish bond.

The house at 5050 Forbes Street is built on the top of a hill, and in order to make a driveway it was necessary to build the terrace in front, which cuts off, in the view, so much of the first story and overpowers the entire house.



HOUSE, MOREWOOD PLACE.  
Rutan & Russell, Architects.

Had an open balustrade been used in place of the brick wall, the effect would probably have been better.

The house at 4902 Forbes Street is on another hill and also difficult to show in a photograph. It is built of dark brown brick and red sandstone. The brick porches and terrace wall have a vigorous air, and the round tile valleys give the roof a broad, simple effect which cannot be obtained when metal valleys are used. Alden & Harlow were the architects.

The house at Colonial Way and Ellsworth Avenue, George S. Orth & Bros., architects, is one of two similar houses on opposite corners. Both are built of gray brick and light stone. The stone portico does not tie in well with the house, due largely to the lack of pilasters, but the general effect of the two houses is good.

The house at 5426 Fifth Avenue and the posts and wall at the entrance are built of light buff brick and terracotta of about the same color.

The residence on Morewood Place by Rutan & Russell is built of rough red brick and black headers laid in Flemish bond; the stonework is light gray. The house suffers from the lack of foliage around it.

A playhouse, gymnasium and bowling alley from the office of Alden & Harlow is here illustrated. The low tile roof, the chimney at the end, and the bowling alleys with the roof cut off at the end, give it an informal air which the problem seems to demand.

The house at Richland Road and Penn Avenue, Peabody & Stearns, architects, is built of dark gray brick, the woodwork stained dark brown. The detail of the bargeboards is interesting and in excellent scale; the inspiration for the work in the gables has been found in the



HOUSE AT SEWICKLEY, PA. Proctor, Wass & Tufts, Architects.



House, 718 Bidwell Ave. Peabody & Stearns, Architects.



Rear of House, 5050 Forbes St. Peabody & Stearns, Architects.



House, Richland Road and Penn Ave. Peabody & Stearns, Architects.



House, 651 Morewood Ave. Peabody & Stearns, Architects.



House, 5426 Fifth Ave. Alden & Harlow, Architects.



House at Duquesne. Alden & Harlow, Architects.

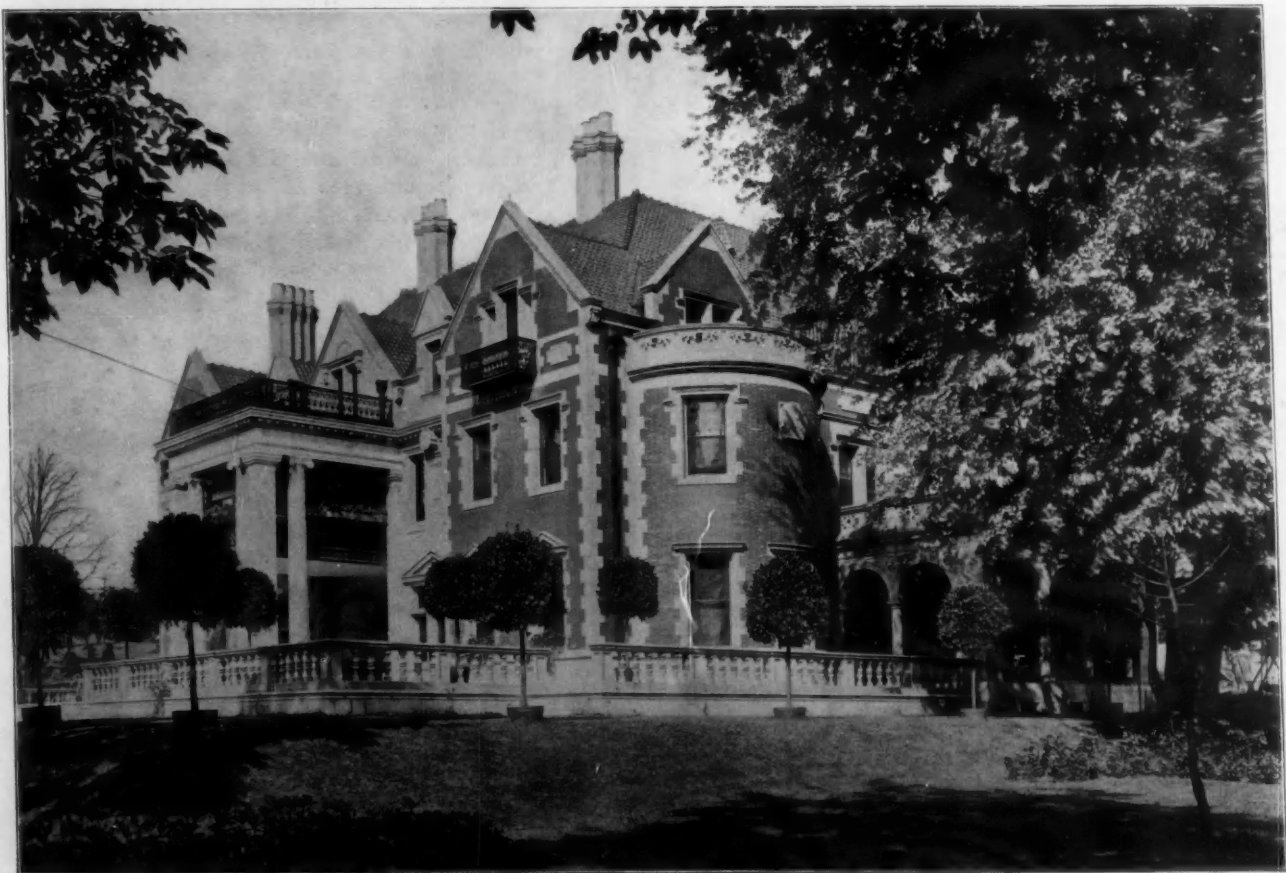


House, Colonial Way and Ellsworth Ave. Geo. S. Orth & Bros., Architects.



Entrance to 5426 Fifth Ave. Alden & Harlow, Architects.





HOUSE, HIGHLAND AND WELLESLEY AVENUES, PITTSBURG, PA. Alden & Harlow, Architects.

old half-timbered work, but the background is here filled in with wood and the beams left in high projection.

The large chimney on the front of the house at Duquesne forms an interesting feature. The brick terrace wall gives a strong base to the building, and the slight use of half-timber work adds interest. Alden & Harlow were the architects.



HOUSE, ST. JAMES STREET AND FIFTH AVENUE.  
McClure & Spahr, Architects.

The large residence at the corner of Highland and Wellesley avenues is built of dark red brick and light stone. The two-story portico on front is marble, but does not seem to tie in well with the rest of the house, and the central gable of the front seems too small.

Another house on Penn Avenue by Alden & Harlow is built of dark red brick laid in Flemish bond, with light terra-cotta quoins, caps and cornice. The treatment of the large chimneys shows what may be done with what are usually regarded as necessary evils. Round valleys have been used in the tile roof.



HOUSE, PENN AVENUE.  
Alden & Harlow, Architects.

The house at 651 Morewood Avenue, by Peabody & Stearns, with the two large gables on front and the dormer between, is generally successful, though the detail around the windows seems too fine. Doubling the slate every fifth course adds interest to the roof, and the hood over the front entrance and the porch on the side are in good scale and interesting in detail.

## Fire-proof Grain Storage Buildings.

THE evolution from the farmer's barn and the loft filled with fat sacks of grain to the modern elevator with its storage capacity of 1,000,000 bushels or more and its wonder-working machinery has for a long time been considered one of the marvels of the latter part of the nineteenth century, but during this time the study of one of the most important elements involved in the handling and storage of our most important production has been going on with slight interruption. Up to 1865 the modern grain elevator had been developed almost to the condition in which we see it to-day in all the large grain-handling marts. It is a structure of wood, some-

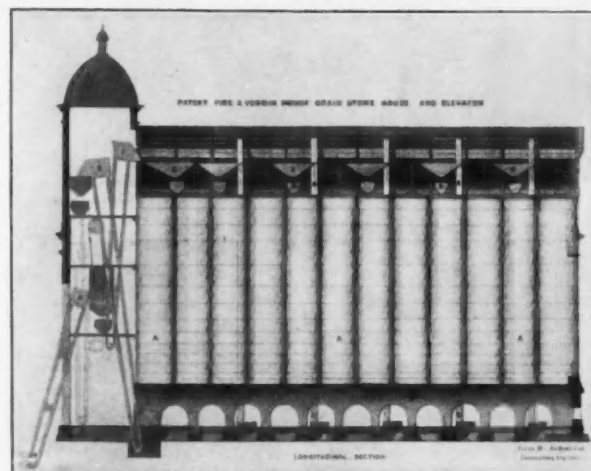


FIG. 1. LONGITUDINAL SECTION OF FIRST BRICK GRAIN ELEVATOR, BUILT AT BUFFALO, N. Y., 1869.

times enclosed in a brick wall or covered with sheet metal, having a long narrow cupola, so called, on top which contains the machinery for handling grain, which is held in deep square bins. These are made with solid walls of wood six inches thick, built by nailing 2 x 6 scantlings one on top of another and breaking joints at the corners and intersections. They form a nest, like pigeon holes set on end. These bins are generally set on

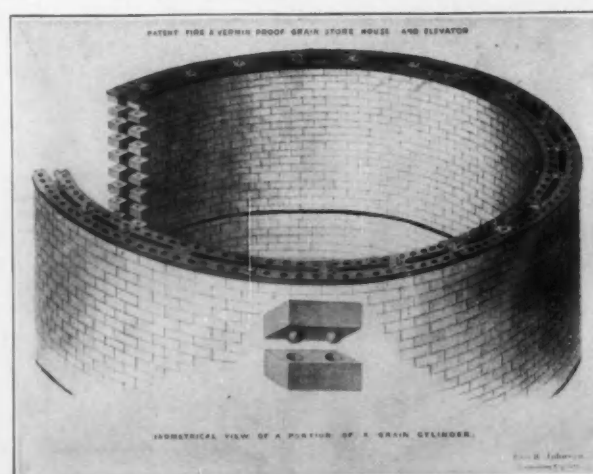


FIG. 2. DETAIL OF BIN CONSTRUCTION OF FIRST BRICK GRAIN ELEVATOR, BUILT AT BUFFALO, N. Y., 1869.

very heavy clustered wooden posts, rarely on iron ones, and require very massive foundations. Railroad tracks are laid between the posts, and at one end of each elevator is the boiler and power house with its high brick smokestack.

Such a structure is one of the most combustible and dangerous inventions from the point of view of fire risks ever conceived by man, and there are those who have claimed for the last thirty years that it is not capable of improvement from that or any other point of view except in small detail, such as mechanical operation.

In 1865 the late George H. Johnson was and had been for many years the draughtsman of the Architectural Iron Works of New York, founded by D. D. Badger, though he was educated as an architect in England. In the course of his duties he had frequent occasion to visit Chicago to supervise the erection of some of the largest "cast-iron fronts" ever put up. His attention was thus called to the operation of the Chicago grain elevators, then the largest in the United States, and their dangers as fire risks. At that time iron, being incombustible, was regarded as a fire-proof material and was the main dependence for the supposed fire-proof qualities of buildings erected by this company. His studies in fire-proofing commenced with grain elevators, and his determination to improve their construction was the main bent of his mind for twenty years thereafter and almost to the day of his death. It was during this time also that he made many of the early inventions and applications of burnt clay to fire-resisting constructions which were the bases of most of the valuable methods in use at the present time.

Believing at first that iron was the main basis of fire-resisting construction, he determined to get some one to erect an iron elevator in an eastern city, where the wooden constructions of the middle West were considered to be dangerous to contiguous properties in closely built cities. In fact there were no grain elevators in the seaboard cities, and grain which was handled scientifically and economically in the interior was handled very awkwardly and expensively at the East in lofts of buildings, while it was generally placed in sacks for transport abroad.

The result of Mr. Johnson's exertions was — to make a long story short — that in 1865 two iron elevators were built from his plans, — one at Brooklyn, N. Y., for the United States Warehouse Company, and the other at Philadelphia for the Pennsylvania Railroad Company. In the large volume on Iron Architecture published by

the New York Architectural Iron Company in 1865 are an elevation and two detail drawings of these elevators. One of the details shows in section the foundation built with counter arches in both directions; the cast-iron columns, tied together in two directions with iron rods; the brick groined arches supporting and forming the bottoms of the bins, where they take the form of hoppers; and the boiler-iron cylindrical bins. The exterior walls of these buildings were rectangular; but in one respect they were novel, and may be said to have been steps leading to modern skeleton construction. They consisted of a framework of cast-iron uprights, in the form of pilasters with horizontal cornice members, all bolted together, forming panels of about 15 x 15 feet, which were filled in with twelve-inch brick walls. The

whole looked like five-story buildings without windows. The Brooklyn building was 107 feet wide and 125 feet long, and was surmounted by an iron roof and lantern skylight covering the conveying machinery. No wood was used in the construction. The Architectural Iron Works in their published description make the confident claim that the "entire structure is absolutely fire-proof and indestructible. Besides these advantages, the grain is secured from the ravages of animals and insects and also protected from heating by arrangements made for its drying and ventilation."

The erection of these elevators created a storm that was unexpected. Every other elevator interest in the country decried them, and it was asserted that the grain would heat and become useless. This deterred shippers for a long time from sending consignments to them and they did a poor business for several years. But ultimately they proved to be not detrimental to the grain,

and the "iron elevators" have been successful ever since.

But the two here mentioned are all that were built of that kind. Mr. Johnson's inventions soon after their erection took the direction of clay systems, when he had become convinced that clay was to be the future material for fire-proof constructions. He therefore proceeded to invent a grain storage house to be entirely built of brick, and bent his energies towards having one built. After several years of effort the Tift Iron Works of Buffalo became interested, and as a result the famous Plympton elevator in that city was erected in 1869. From an old circular are reproduced a vertical section of the building and a detail drawing of one of the tanks. (Figs. 1 and 2.) This elevator has no exterior wall above the ground story, the exposed exterior of the tanks forming a cor-

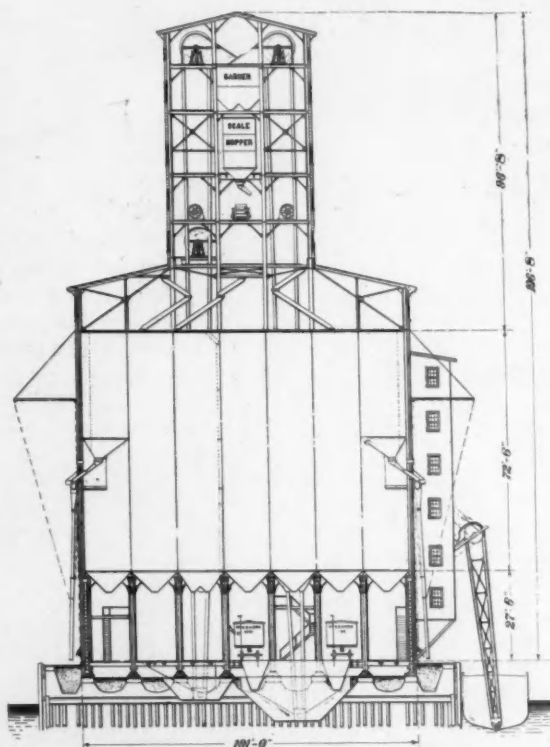


FIG. 3. CROSS SECTION OF ELEVATOR FOR WEST SHORE RAILROAD, WEEHAWKEN, N. J. BUILT OF STEEL ENCLOSED WITH BRICK WALLS AROUND MAIN STRUCTURE AND HOLLOW TILES AROUND CUPOLA. ROOFS OF BOON TILE.



rugated surface. In addition to the brick tanks the interstices between them, formed by four quarter circles reversed, were used as tanks, so that the house could be filled solid. On the detail (Fig. 2) the bricks are shown with knobs on the bottom and recesses on the top; but I am informed that standard common bricks were used. The walls are ten inches thick, being of two



FIG. 4. GREAT EASTERN ELEVATOR TANKS, MINNEAPOLIS. SEEN FROM INSIDE DURING CONSTRUCTION.

courses of brick with a two-inch space between. At intervals of eighteen courses they are reinforced with cast-iron bond plates which are bolted together horizontally. Each course of bond plates is bolted to the next course of plates both above and below with vertical iron rods in the air spaces around each circle distant from each other about twenty inches.

This building has stood until the present time and is only to be removed to make changes in the right of way of the New York Central Railroad. Standing for thirty-two years, it has been the only grain elevator that could have been called fire-proof up to the last two years. Notwithstanding its great cost it has been a paying investment on account of the great sums that have been saved in reduction of insurance, not only on itself, but on the enormous quantity of grain that has been stored in it during these years.

Mr. Johnson did not accomplish anything more in fire-proofing grain elevators until he moved to Chicago in 1872 and was engaged in organizing a fire-proofing business for the use of hollow tiles. In that year he built the cupola of Vincent, Nelson & Co.'s wooden elevator at Archer Avenue and South Branch with hollow tiles. This is the first elevator in which hollow tiles were ever used for their fire-proof qualities. He also built the first hollow-tile floor arches at Chicago in the Equitable Building. He died at Chicago in 1879.

Hollow tiles were not used again for covering the exteriors of elevators of the wooden-bin construction until 1890, when Elevator A of the New York Central & Hudson River Railroad Company, designed by J. T. Moulton & Son of Chicago, was built at Sixtieth Street and Hudson River, New York City. The first story of this building is enclosed with brick walls. Above this story all of the bins and the cupola are covered with salt-glazed hollow tiles. When built it was the largest example of the use of salt-glazed hollow tiles for fire-proofing the exterior of a building.

A remarkable example of elevator construction is now

being erected at Weehawken, N. J., for the West Shore Railroad Company. It is an elevator structure of 2,000,000 bushels' capacity which is being erected entirely of steel. A cross section from the drawings for this elevator is here given. (Fig. 3.) The bins are of steel and rectangular. For fire-proofing purposes it is protected on the outside with enclosing brick walls up to the eaves of the roof. The roof over the bins and cupola is built with book tiles laid between T irons, and the cupola is enclosed with a wall of eight-inch hollow fire-clay tiles. These will be coated with cement plastering on the outside. It was designed by George M. Moulton & Co. of Chicago.

Circular steel tanks for the storage of grain were erected at Buffalo in 1895 and have been extensively used since then, not only at Buffalo, but at South Chicago and in a few instances at Minneapolis. They have been favored by reduced rates of insurance over that charged for elevators of wooden construction, the rate for which is from  $2\frac{1}{2}$  to  $3\frac{1}{2}$  per cent, according to methods of covering on the exterior and external exposure.

It is the main purpose of this article to describe the evolution from the Plympton brick elevator designed by George H. Johnson, of a practicable system of grain storage designed by his son, Ernest V. Johnson, with the collaboration of James L. Record, an elevator architect of Minneapolis, which it can be truthfully said is *fire-proof*, and has been in use for the past two years only. This is the opinion of those who have heretofore looked to policies of insurance quite as much as to the grain itself for security against loss,—the great banks of the

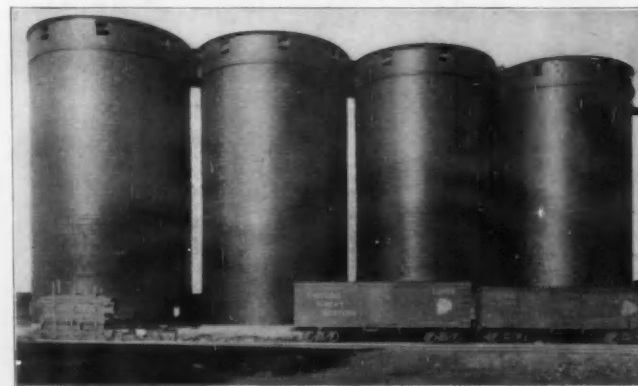


FIG. 5. GREAT EASTERN ELEVATOR TANKS, MINNEAPOLIS.

Northwest, whose largest investments are advances on certificates of grain in storage. As far as known the hollow-tile grain tanks now to be described do not carry any insurance.

In 1898 Ernest V. Johnson commenced experimenting on a system of grain tanks to be built of hollow burned clay building tiles, following the method adopted by his father for brick bins. In that year he took out a patent for building square tanks of the shape always employed in wooden elevators. But he soon abandoned the idea and took up the study of round tanks. In 1899 he determined to build an experimental tank, and in December of that year, with the assistance of James L. Record of Minneapolis and Horace B. Camp of Akron, Ohio, he built a single tank on the grounds of the Osborne-Mc-

Millen Elevator Company at Minneapolis, and presented it to that company to use for demonstration. This tank was 20 feet in diameter and 60 feet high, which gave it a capacity of 20,000 bushels. It was erected in extremely



FIG. 6. ST. ANTHONY ELEVATOR COMPANY'S TANKS, MINNEAPOLIS.

cold weather and was allowed to stand only thirty days before it was filled. It was built of 3 x 13 inch book tiles, 12 inches long, in two courses, with one inch of grout between, which made the wall 7 inches thick. The tension was taken up by steel bands varying in section from 2 x  $\frac{3}{4}$  inch to 2 x  $\frac{1}{8}$  inch, and between them were 7 x  $1\frac{1}{2}$  inch solid tiles used as binders.

This tank was filled with grain and has been used ever since. Most elaborate apparatus was set up by Messrs. Johnson and Record to determine all the strains to which this tank could be subjected, especially the pressure of the grain at various points and the effects of its action when filling and discharging. Fire tests were also made on a section set up for that purpose.

Everything being satisfactory to the inventors, the Barnett & Record Company of Minneapolis assumed all the responsibilities of contractors, fully guaranteeing these tanks, and in less than a year from the date of the first test were erecting four tanks of great size for Nichols & Taylor's Great Eastern Elevator at Minneapolis. These



FIG. 8. TANKS OF THE NORTH STAR MALTING COMPANY, MINNEAPOLIS.

tanks are forty-six feet in internal diameter and eighty-five feet high, with a capacity of 100,000 bushels each — five times as large as the experimental tank. The weight of the grain carried in each of them is 2,800 tons. They

were built with a single wall of six-inch hollow tiles, lined with two-inch split furring tiles on the inside. A course of 6 x 12 x 12 inch tiles with four cells in each was alternated with a course of 4 x 6 inch tiles made in the form of a continuous trough. These were set on their backs. In these troughs steel tension bars are set on edge, three near the bottom of tank and two in the upper part, laid in loose, breaking joints like the tiles, and buried in Portland cement grout. The trough being filled solid with cement, the next course of 6 x 12 inch tiles is set on edge, then trough tiles and steel bars, and so on to the top. There are of course other details connected with the work. Usually there is a stone water-table at the bottom of each tank and a molded tile cornice at the top.

Two illustrations will show how the work was done on the Great Eastern tanks. Figure 4 shows the work in progress on the last two tanks at the end of the row, and Figure 5 shows the tanks in their present condition since they have been painted. Comparison can be made with the size of freight cars which are nearer to the spectator. The machinery building is not shown in the picture except by part of the connecting bridge. In this case the endless belt for filling passes through the upper part of the tanks, and there is no cupola. The grain is withdrawn by a similar belt underground, which is connected with pits into which the grain is discharged.

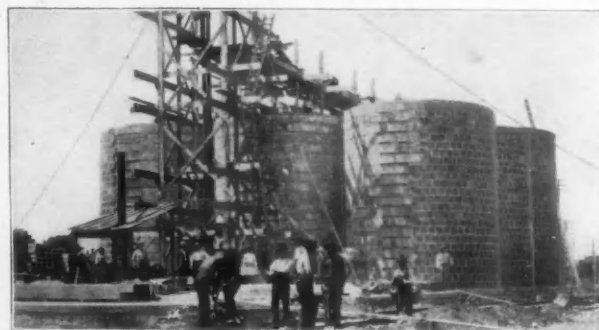


FIG. 7. TANKS OF NORTH STAR MALTING COMPANY, MINNEAPOLIS, IN PROCESS OF CONSTRUCTION.

Mr. Johnson's idea of lining the tanks with furring tiles was never repeated, and all that have been built since that last described are covered with two-inch hollow salt-glazed furring tile on the outside, which are secured during the progress of the work to the tank wall with galvanized steel anchors. These give protection from exterior fires to the wall which constitutes the actual construction, and if damaged in any way can be replaced. They are also an additional protection from the rays of the sun to which all the tanks are subjected.

In the years 1900 and 1901 this system of tanks was erected by the Barnett & Record Company for three plants at Minneapolis, and one each at Appleton, Wis.; Rosedale, Kan.; Milwaukee and Detroit. They were: for the St. Anthony Elevator Company at Minneapolis, twelve tanks 50 feet internal diameter and 90 feet high each; for the North Star Malting Company, Minneapolis, eighteen tanks 22 feet internal diameter and 80 feet high each; for the Victoria Elevator Company, Minneapolis, two tanks 50 feet internal diameter and 90 feet

high each; for the Wisconsin Malting and Grain Company, Appleton, Wis., nine tanks 22 feet internal diameter and 80 feet high; for the St. Louis & San Francisco Railroad Company at Rosedale, Kan., two tanks 46 feet internal diameter and 86 feet high, and two tanks 50 feet internal diameter and 68 feet high; for the Pabst Brewing Company, Milwaukee, fourteen tanks 14 feet internal diameter and 70 feet high; and for the David Stotts Milling Company, Detroit, four tanks 14 feet internal diameter and 70 feet high. The following have been erected during the present year or are under construction: for

North Star Malting Company are shown in process of construction, and Figure 8 is a view of the tops of the same with the structural steel of the superstructure for distributing the grain in position. The roofs of the tanks are formed with J irons supported by steel trusses having their bearing on the tile walls. Between the J irons 2 x 12 x 17½ inch hollow book tiles are set in cement, and a composition roof covers the whole as a weathering. The superstructure is enclosed with hollow tile and roofed in the same manner. In the North Star plant the interstices between the tanks are also used for storage

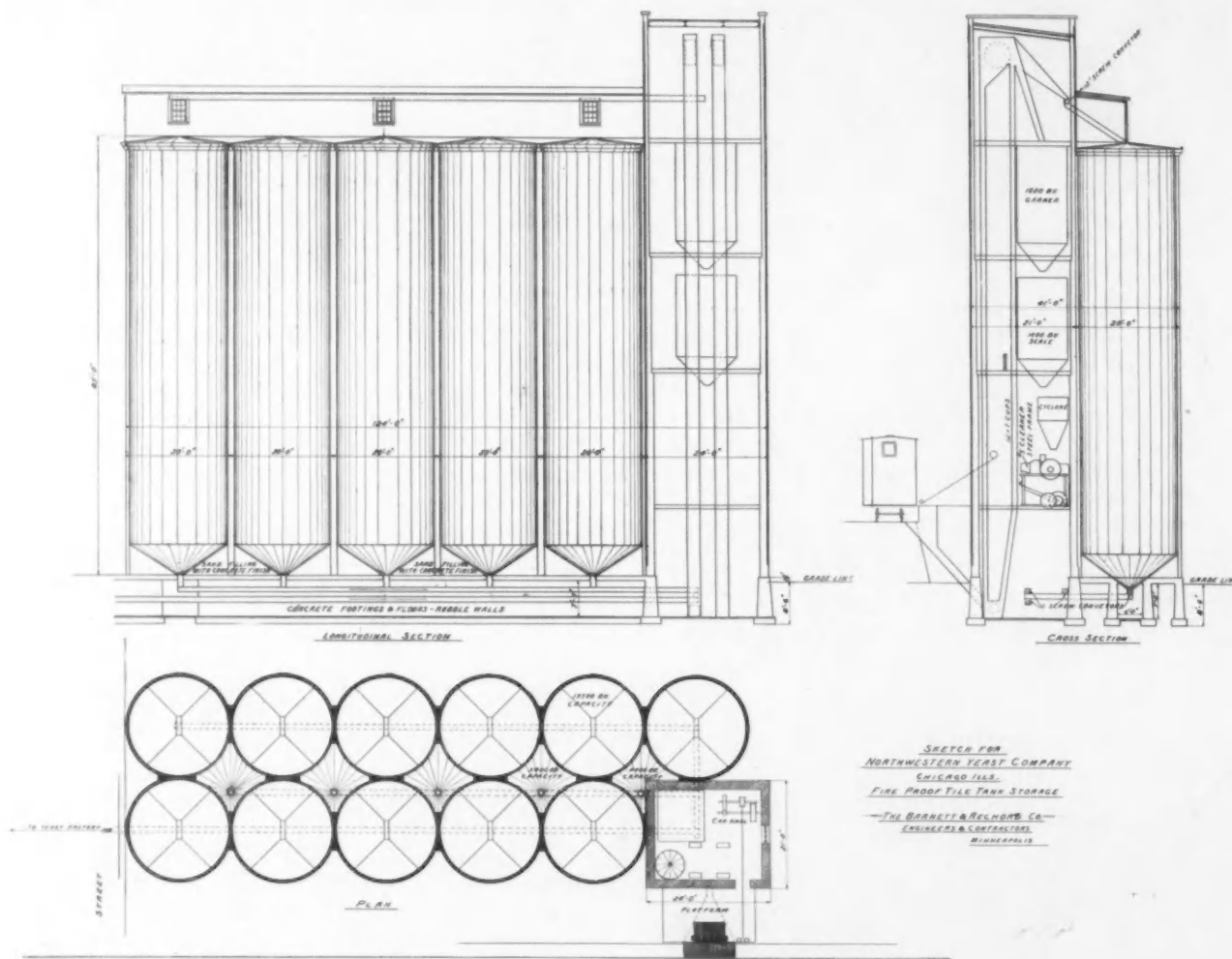


FIG. 9. PLANS OF TANK STORAGE SYSTEM FOR THE NORTHWESTERN YEAST COMPANY, SHOWING METHOD OF CONSTRUCTION AND OPERATION.

the St. Anthony Elevator Company, Minneapolis, four tanks 50 feet internal diameter and 90 feet high; for the St. Louis & San Francisco Railroad Company at Rosedale, Kan., three tanks 46 feet internal diameter and 85 feet high; for Bernard Stern & Son, Milwaukee, nine tanks 19 feet internal diameter and 85 feet high; and for the Canadian Northern Railroad Company, Port Arthur, Canada, a cluster of eighty tanks 22 feet internal diameter and 80 feet high.

An illustration is given in Figure 6 of the St. Anthony tanks nearing completion. In Figure 7 the tanks of the

purposes, and for this purpose they are all tied together. This system is used where the circular tanks have an internal diameter of twenty-two feet. The tanks of forty-six to fifty feet internal diameter are built isolated, with passages around and between them.

The first of these fire-proof tank elevators to be erected in Chicago has just been commenced. Figure 9 is an illustration of its construction and method of operation taken from the preliminary design. It is for the Northwestern Yeast Company, on North Ashland Avenue. James L. Record of Minneapolis is the architect.



## Selected Miscellany.

### ST. PAUL'S, LONDON.

THE authorities in charge of the cathedral of St. Paul seem to be thoroughly alarmed as to the condition of the structure and have obtained expert advice as to what can be done. It was reported that an expenditure of something like three hundred thousand dollars would be required to make the edifice secure. The fall of the Venice campanile seems to have been a very forcible object lesson to custodians of prominent buildings throughout the world, and whatever danger may threaten the London cathedral it is hoped it may be averted in season to prevent any serious calamity. The strengthening of a large building of this sort so as to make it safe beyond peradventure is by no means an impossibility. The construction of the dome of St. Paul's is exceedingly daring and at the time it was built it was far in advance of any theoretical knowledge possessed either by Sir Christopher Wren or his contemporaries. Judging from the reports which reach us, the weakness lies rather in the foundations than in the dome itself, but any settlement of the former would doubtless be very disastrous to the latter. The west porch, which was at one time reported to be in danger of collapse, is not a very heavy structure and there ought to be very little difficulty in making it absolutely secure. The construction of a tunnel in the immediate vicinity of one of our modern first-class office buildings would probably not be attended with any hazard to either the tunnel or the building, for the reason that although the loads in a modern office building are enormous and far beyond anything to which the architects of the past were accustomed, they are so easily concentrated or distributed that they never need unduly load the subsoil. In the case of St. Paul's, however, too much reliance appears to have been placed upon a soft subsoil, and the



LIBRARY AT ALBANY, N. Y.  
 Marcus T. Reynolds, Architect.  
 Brick furnished by Pfotenhauer & Nesbit, New York City.



U. S. POST OFFICE, ANNAPOLIS, MD.  
 James Knox Taylor, Architect.

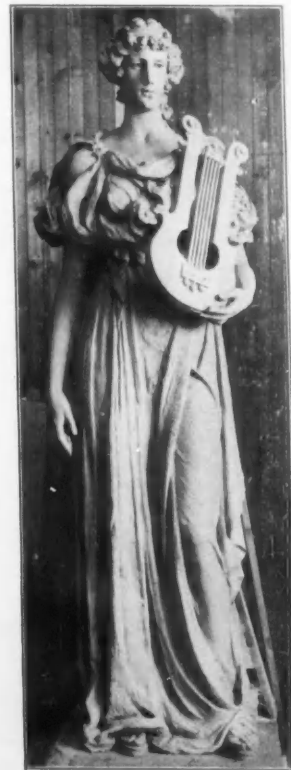
building of tunnels in the vicinity has drained this area so thoroughly that it is feared the soil can no longer withstand the unit stress upon the foundations.

### FIRES IN HIGH BUILDINGS.

THE Mills Building, 35 Wall Street, New York City, is a fire-proof building erected some twenty years ago, which has had recently an experience in the immunity from fire loss secured by terra-cotta construction. It is being added to by three additional stories, and during the construction a temporary wooden roof and house were erected for protection, extending nearly the width of the building, and utilized by the contractors for storage.

The iron beams and girders for the addition were in place and the terra-cotta material for the floors had just been set on Saturday, October 25, the temporary wood centers being still in position to allow the cement time for setting, when on the following evening, Sunday, October 26, a fire broke out in the temporary structure referred to—the cause not ascertainable—and fed by the quantity of lumber and other inflammable material in the structure and centers, burned fiercely for several hours, three fire alarms being sounded.

Despite the intense heat, the mass of water thrown against the ceiling and floor, the efforts of the firemen using their axes and hooks to tear down the wood centers, a surprisingly small amount of damage was inflicted on the arches, and that was easily repaired.



EXECUTED IN TERRA-COTTA  
 BY CONKLING-ARMSTRONG  
 TERRA-COTTA COMPANY.  
 Bruce Price, Architect.

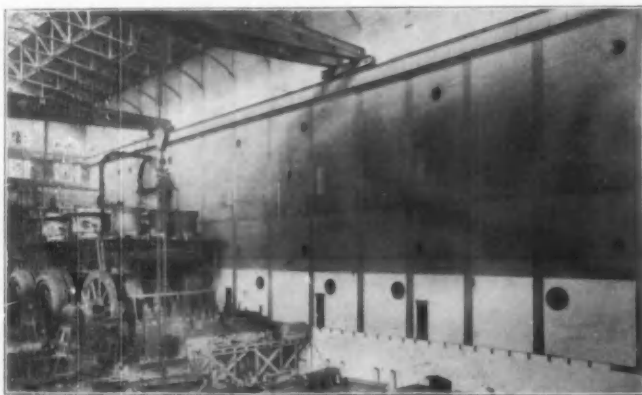
#### REMOVAL OF A BOSTON CORRESPONDENCE SCHOOL TO CHICAGO.

THE American School of Correspondence of Boston, believing that correspondence instruction in technical subjects can be made more efficient and helpful beyond what has heretofore been accomplished, has made an arrangement with the management of the Armour



DETAIL BY ROOT & SEIMENS, ARCHITECTS.  
St. Louis Terra-Cotta Company, Makers.

Institute of Technology whereby the professors and instructors of engineering of the faculty of the Armour Institute will constitute a board of instruction, revision and examination for the American School of Correspondence. In accordance with this arrangement the American School of Correspondence has removed to Chicago to commodious quarters, 3321 Armour Avenue, adjoining the main building of the Armour Institute of Technology. The work satisfactorily done by correspondence students according to this new management will be accepted and credited at the Armour Institute of Technology when students desire to complete their course by actual residence there. The management of the Armour Institute of Technology coöperates to conduct this educational enterprise by correspondence in the hope of bringing to wage earners of all ages the results of the most complete resident school laboratory work. The change will in no way affect the individuality of the American School, but is made with the idea of harmonizing correspondence instruction with resident instruction, thus insuring correspondence school students a high standard of instruction. The advantages offered students unable to attend a resident school are evident, and the plan shows in the most striking manner the wonderful advance in



ENGINE ROOM, EDISON ELECTRIC POWER HOUSE, NEW YORK CITY.  
Lined with Enamel Brick furnished by the American Enamelled Brick and Tile Company.

the educational possibilities of the people in recent years. Young men who are unable to give up four years to obtain a technical education can, by first taking a correspondence course, reduce the time required for obtaining a complete course and a resident school degree. The step marks a new era in the educational possibilities of mechanics, and will be watched with great interest by all thinking people.

#### NEW METHODS IN BRICKMAKING.

THE Fiske Brick Company has recently completed its new plant at Dover, N. H., in which will be manufactured hard-burned common red building brick. The success of this enterprise, which seems to be assured, marks a new epoch in the brickmaking industry of the country. Hand labor, which in the ordinary brickyard



BUSINESS BLOCK, KANSAS CITY, MO.  
Louis Curtis, Architect.  
Veneered with American-size White Enamel Brick made by Hydraulic-Press Brick Company.

constitutes about one half the entire cost of manufacture, is here almost entirely eliminated, the bricks being handled through nearly the entire process in large masses by electrically driven machinery under control of one operative, the bricks being touched by hand but once until they are delivered in the storage house as finished product.

Mr. J. B. Parker Fiske, son of Mr. George M. Fiske (Fiske Brick Company, Boston), is the inventor and patentee of the devices used. He is a graduate of the Massachusetts Institute of Technology, and was formerly connected with the Westinghouse Electric Company of Pittsburg.

Probably no series of inventions which have had to do with the clay-working industry have attracted such widespread attention as have these, and the great saving which is made in the cost of manufacturing common brick by this process will undoubtedly largely increase the use of that material.



THE LEAMY HOME, MT. AIRY, PHILADELPHIA, PA.  
Cope & Stewardson, Architects.





COMMERCIAL TRUST COMPANY BUILDING, JERSEY CITY, N. J.  
Brick furnished by The Kreischer Brick Manufacturing Company.  
Terra-Cotta by the Atlantic Terra-Cotta Company.  
George B. Post, Architect.

#### SUNDRY ITEMS OF INTEREST.

John T. Comes, architect, has opened an office at 341 Sixth Avenue, Pittsburg, and would be glad to receive manufacturers' catalogues.



DETAIL BY APPLETON P. CLARK, JR.,  
ARCHITECT.  
Atlantic Terra-Cotta Company, Makers.

The Class Committee of the Boston Architectural Club has arranged for two classes during the present season (1902-3), one in Planning and one in Construction. A charge of \$7.50 is made to each member wishing to join the class in Planning, and \$5 to those who join the class in Construction.

The Ingalls Building, Cincinnati, which will be some fifteen or sixteen stories high, Elzner & Anderson, architects, will have two of its façades built almost entirely of a satin-finish, granite-

shade, English-size enameled brick, which will be furnished by the Tiffany Enameled Brick Company of Chicago.

The Cincinnati Roofing Tile and Terra-Cotta Company, manufacturers of the American S Roofing Tile, have just issued an interesting catalogue illustrating and describing the tile which they make and also giving much valuable information concerning the use of tile on roofs. The manufacturers of this tile have been engaged in the roofing business for many years, being one of the



HOUSE, MT. HOLLY, N. J.  
T. H. Prior & Sons, Architects.  
Built of Iron-Clay Brick, made by Columbus Face Brick Company.

largest concerns of the country in that line of work, consequently their suggestion as to how tile should be laid will have more than the usual interest and value.

The large new Astor Hotel, Broadway, New York City, Clinton & Russell, architects, will have about 250,000 repressed red brick in its front walls and 400,000 light buff brick in the courts, same being supplied by the Sayre & Fisher Company.

One hundred thousand light gray bricks, furnished by the Sayre & Fisher Company, were used in the facings of the Flatiron Building, New York City, D. H. Burnham & Co., architects.

Three hundred thousand light gray front brick, 500,000 buff brick and a large quantity of light and brown enameled brick will be used in the new power house for the Underground Rapid Transit Road, New York City. These bricks



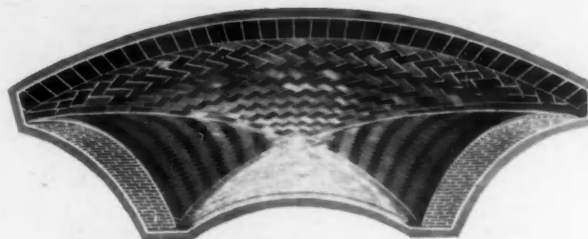
DETAIL BY LUDLOW & VALENTINE, ARCHITECTS.  
New York Architectural Terra-Cotta Company,  
Makers.

will be furnished by the Sayre & Fisher Company. This is said to be the largest power house in the world.

The American Enameled Brick and Tile Company will furnish enameled brick for the Charles Schwab house, Riverside Drive, New York City, Maurice Hebert, architect; also for the National Savings Bank and New York State Bank, Albany, N. Y., for linings of walls in storage room and basement; Race Street Pumping Station, Philadelphia; extension to Harrisburg Railroad depot; and the Busy Bee Candy Kitchen Company, Columbus, O. The smallest of these contracts is for 25,000 brick, and others run up to 200,000.

They have also supplied the United Engineering and Contracting Company with about 175,000 enameled bricks which were used in both the New York and Brooklyn terminals of the new East River Bridge.

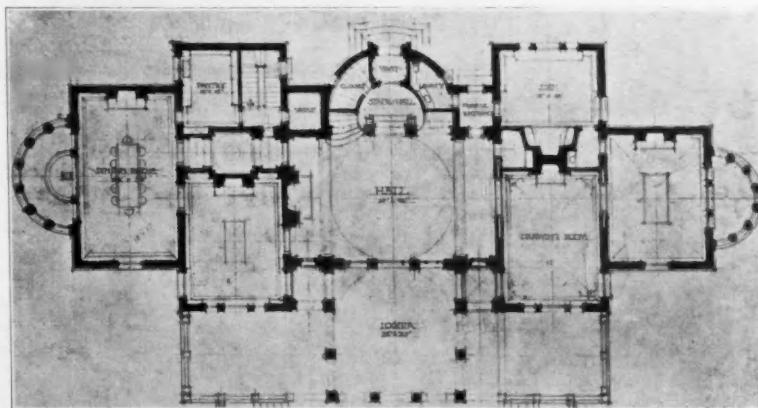
Among the new contracts now being served by the Sayre & Fisher Company are the following: Blair Building, New York City, Carrère & Hastings, architects, white semi-glazed brick for interior work; white front and white enameled brick for the Vanderbilt houses, Fifth Avenue, New York City, Hunt & Hunt, architects; white semi-glazed brick for the courts and white enameled brick for the basements of the new Mutual Life Building, New York City, Carrère & Hastings, architects; white enameled brick for the basement and vaults of the new R. H.



GUASTAVINO CORRUGATED GLAZED TILE CEILING,  
MINNESOTA STATE CAPITOL, ST. PAUL.  
Cass Gilbert, Architect.



Macy Building, New York City; 150,000 white brick for the interior and sides and 150,000 white enameled for basement and vaults of the new Stock Exchange Building, New York City, George B. Post, architect.



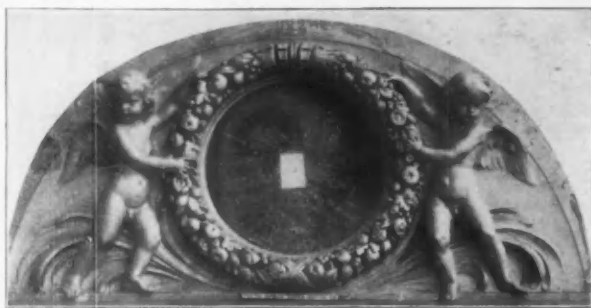
FIRST FLOOR PLAN.  
INFIRMARY AT VASSAR COLLEGE, POUGHKEEPSIE, N. Y.  
York & Sawyer, Architects.



47 FEET LONG, 11 FEET HIGH.  
TYMPANUM EXECUTED IN TERRA-COTTA BY EXCELSIOR  
TERRA-COTTA COMPANY.  
J. Mills Platt, Architect.

The Atlantic Terra-Cotta Company reports that it is now executing work on the following contracts: The Battery Place Building, Battery Place, New York City, H. J. Hardenberg, architect; Kuhn-Loeb & Co. Building, William and Pine Streets, New York City, James B. Baker, architect; Antelope House, Bronx Park, New York City, Heins & LaFarge, architects; City Club Building, West Forty-fourth Street, New York City, Lord & Hewlett, architects; Metropolitan Life Insurance Company Building, Cleveland, Ohio, Meade & Garfield, architects;

Old South Office Building, Washington Street, Boston, Mass., Arthur H. Bowditch, architect; Bellevue-Stratford Hotel, Broad Street, Philadelphia, Pa., G. W. & W. D. Hewitt, architects; Home Savings Bank Building, Massachusetts Avenue, Washington, D. C., A. P. Clark, Jr., architect; Carnegie Library, Huntington, W. Va., J. B. Stewart, architect; Lyceum Building, Pittsburg, Pa., John T. Comes, architect; residence for John A. Yates, Esq., Detroit, Mich., Kastler & Hunter, architects.



DETAIL BY PEABODY & STEARNS, ARCHITECTS.  
Perth Amboy Terra-Cotta Company, Makers.

Among the recent contracts awarded to the Tiffany Enameled Brick Company are those for the First National Bank Building, Chicago, and the Land, Title and Trust Building, Philadelphia, D. H. Burnham & Co., Chicago, being architects for both buildings, besides the following: The Lake Shore and Rock Island depot, Chicago, Frost & Granger, architects; the Commonwealth Electric Power House, Chicago, Shepley, Rutan & Coolidge, architects; McKinley Park Bath House, Chicago; fire engine house No. 62, New York City, Alexander Stevens, architect; fire engine house No. 9, New York City, Alexander Stevens, architect; eastern pumping station, Cincinnati Water Works, California, Ohio; Grand Trunk depot,



DETAIL BY WATSON, HUCKLE & CO., ARCHITECTS.  
New Jersey Terra-Cotta Company, Makers.

Flint, Mich., Spear & Rohns, architects; dynamo room, Leslie E. Keeley Company, Dwight, Ill., Julian Barnes, architect; Y. M. C. A. swimming pool, Terre Haute, Ind.; Boylston Building, Boston, Clinton J. Warren, architect; addition to the Trude Building, Chicago, Jenney & Mundie, architects; addition to the Tribune Building, Chicago, Holabird & Roche, architects; city hospital power house, St. Louis, Mo., C. F. Longfellow, architect.

Charles Bacon, Boston representative for Sayre & Fisher Company, reports the following new contracts for their brick: residence, Commonwealth Avenue, Boston,



DETAIL BY HOLABIRD & ROCHE AND SANGUINET & STAATS,  
ASSOCIATE ARCHITECTS.  
Northwestern Terra-Cotta Company, Makers.

Peabody & Stearns, architects; State Mutual Building, Boston, Andrews, Jaques & Rantoul, architects; bank building, Leominster, Mass., Hartwell, Richardson & Driver, architects.

#### AN OLD FIRM WITH A NEW NAME.

The Columbus Face Brick Company of Columbus, Ohio, has changed its name to that of The Ironclay Brick Company, this latter name having always been the trade-mark title for its product. There will be no change in the personnel of the company or the product, except that the latter will be largely increased because of greatly increased facilities.

**WANTED.** — A DRAUGHTSMAN OF EXPERIENCE AND JUDGMENT, AT PRESENT HEAD DESIGNER FOR ONE OF THE LEADING FIRMS OF ARCHITECTS IN CHICAGO, DESIRES AN OPENING AS A JUNIOR PARTNER WITH AN ESTABLISHED ARCHITECT.

ADDRESS

"DRAUGHTSMAN,"

CARE OF THE BRICKBUILDER.

#### PERSPECTIVE DRAWING

TAUGHT BY CORRESPONDENCE.



Main Building, Armour Inst.

The American School of Correspondence offers thorough instruction in MECHANICAL DRAWING, DESCRIPTIVE GEOMETRY, ISOMETRIC AND PERSPECTIVE DRAWING AND SHEET-METAL WORK. Courses prepared by professors of the foremost architectural school.

Instruction is also offered in Architecture, Mechanical, Electrical, Locomotive and Marine Engineering, Heating, Ventilation and Plumbing, Textile Manufacturing, Telephony and Telegraphy.

**Instruction Under Members of the Faculty of Armour Institute of Technology.**

As the instruction is according to the standards and methods of the Armour Institute of Technology, all work satisfactorily passed will receive credit toward entrance work should the student enter the regular classes of the Armour Institute.

Catalogue describing courses, methods and terms on request.

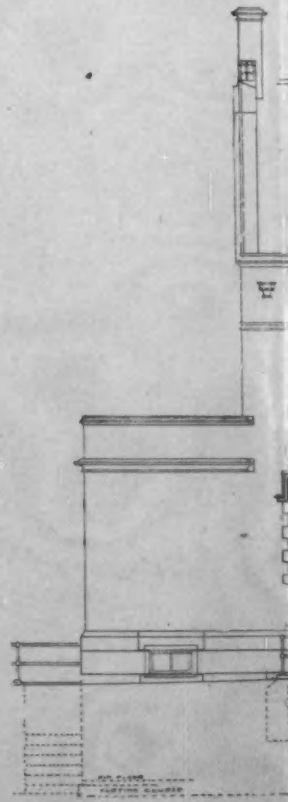
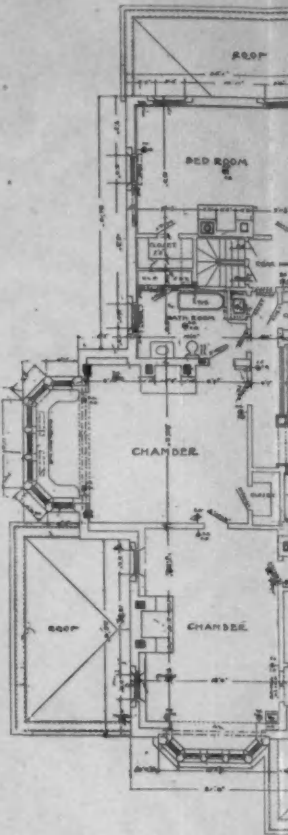
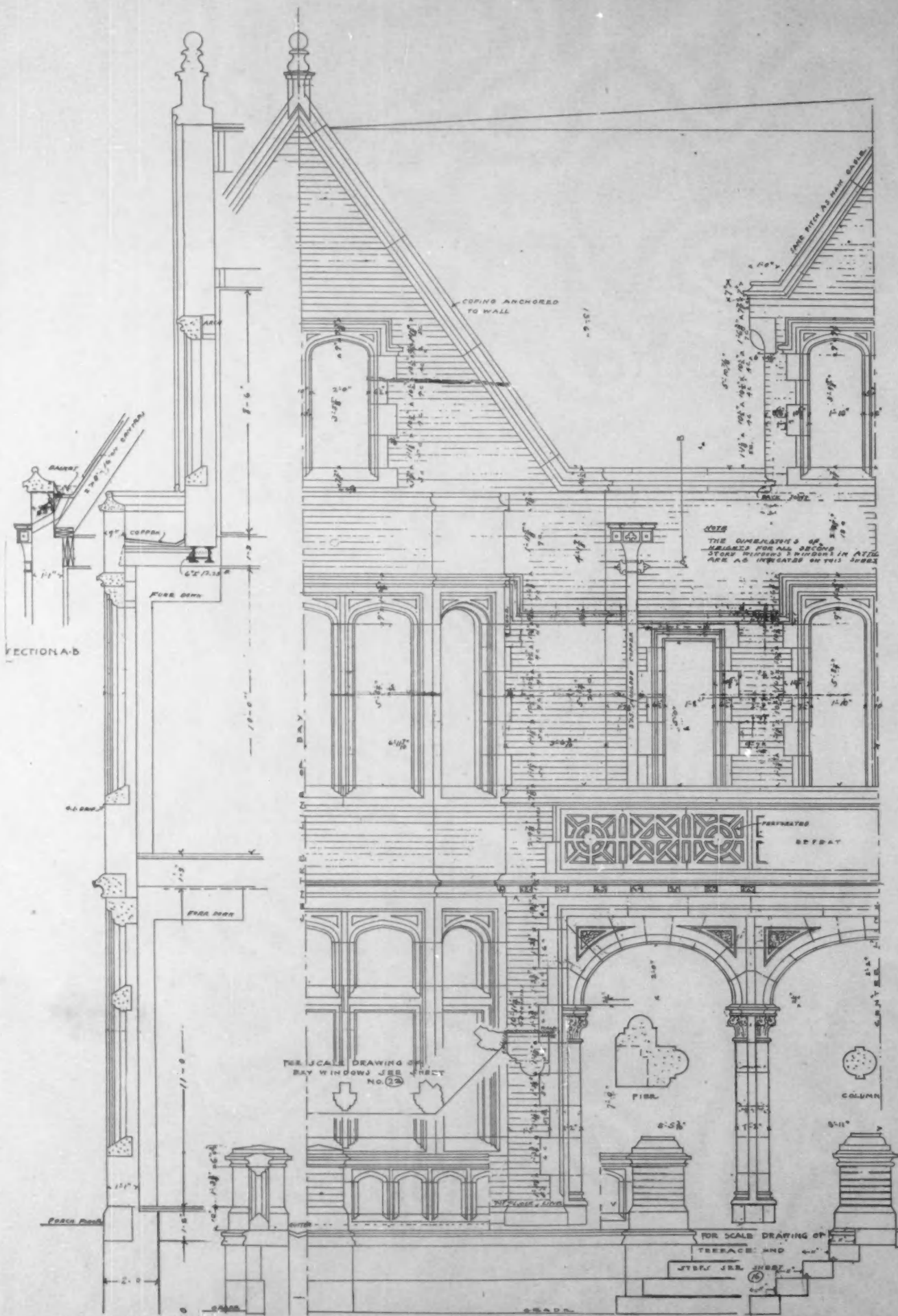
AMERICAN SCHOOL OF CORRESPONDENCE

AT ARMOUR INSTITUTE OF TECHNOLOGY

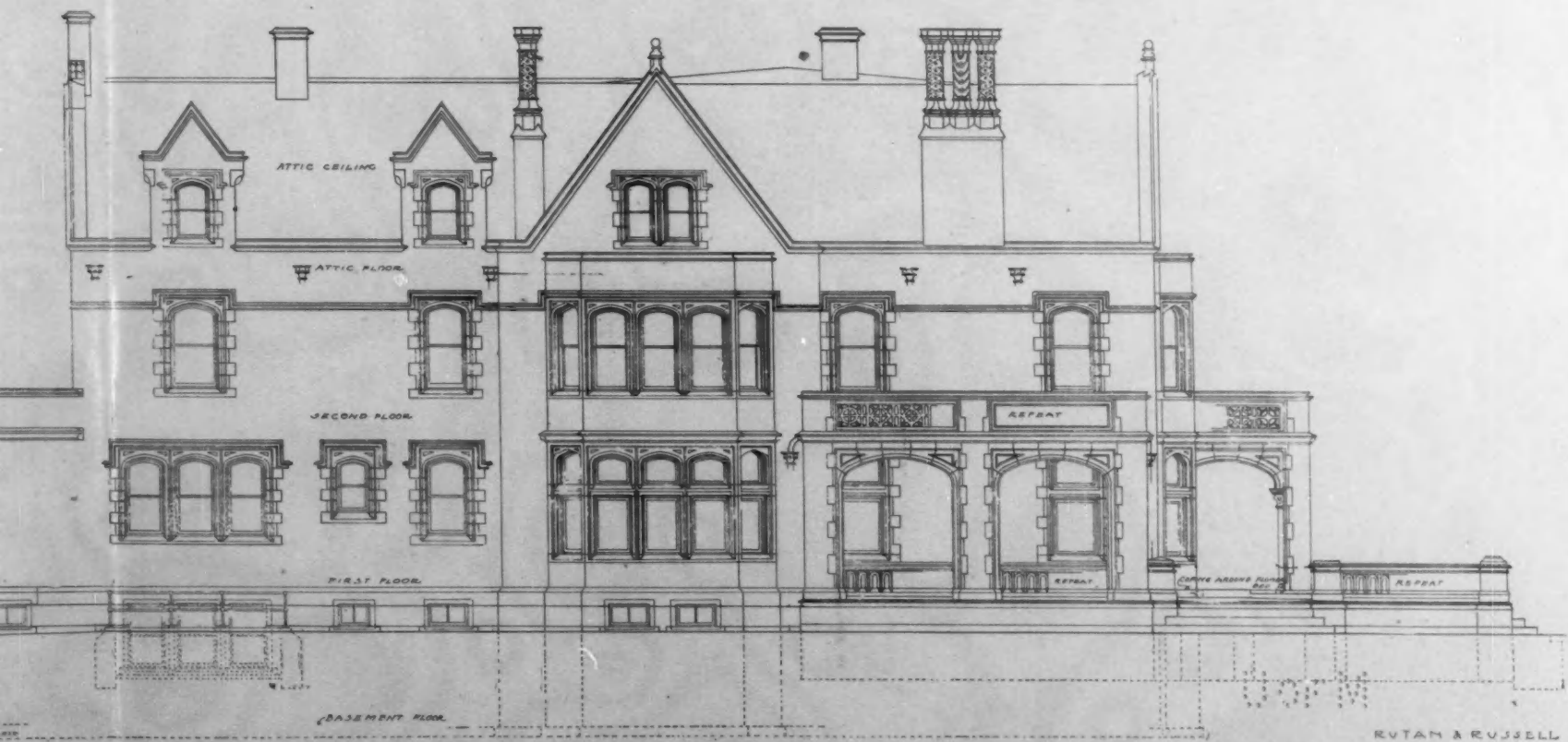
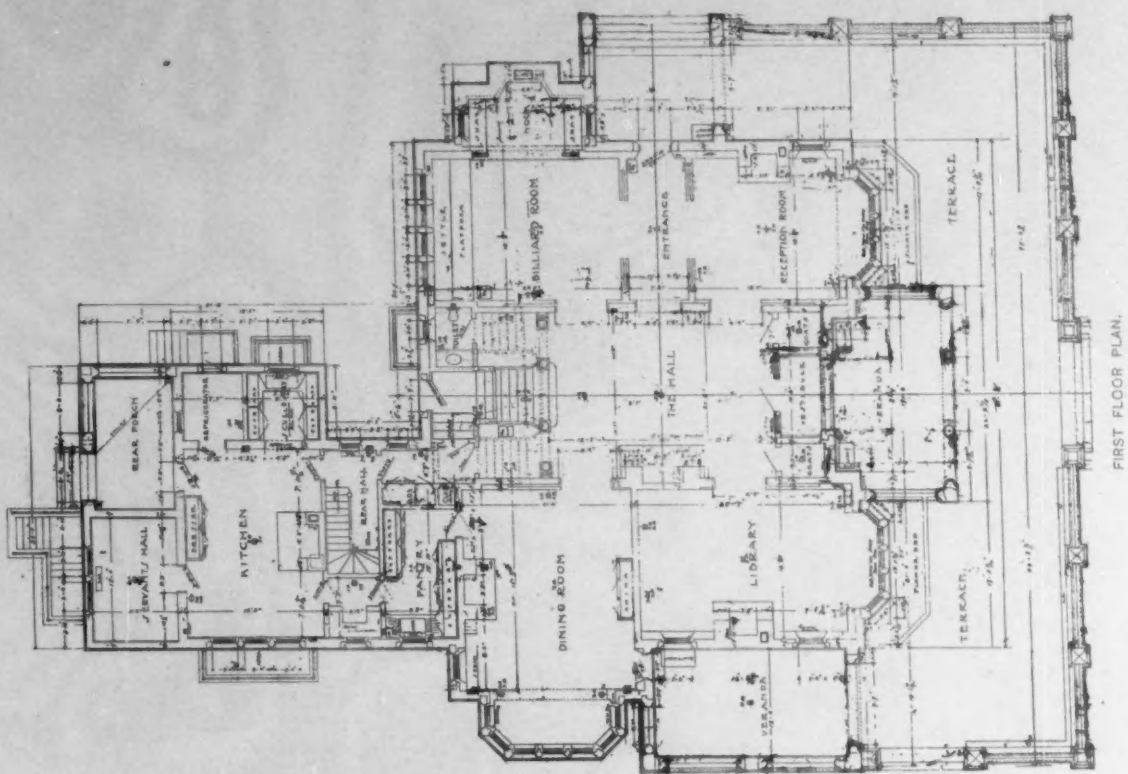
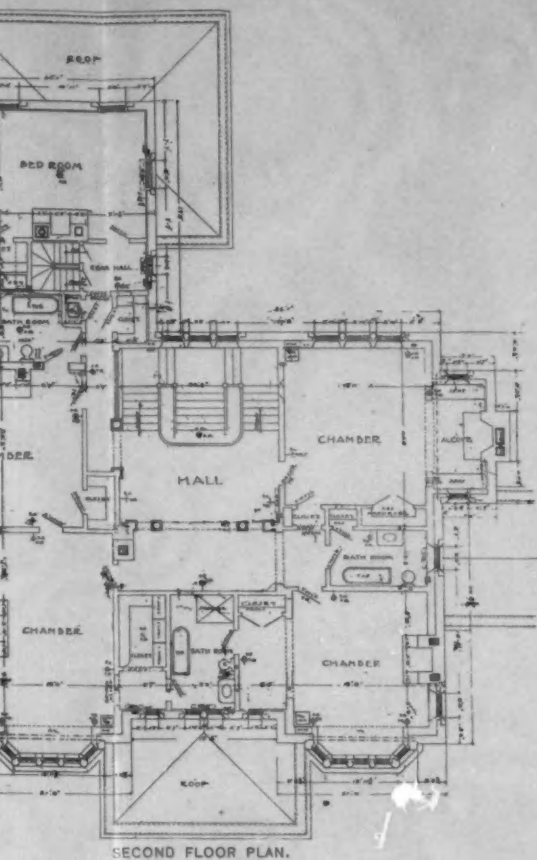
CHICAGO, ILL.



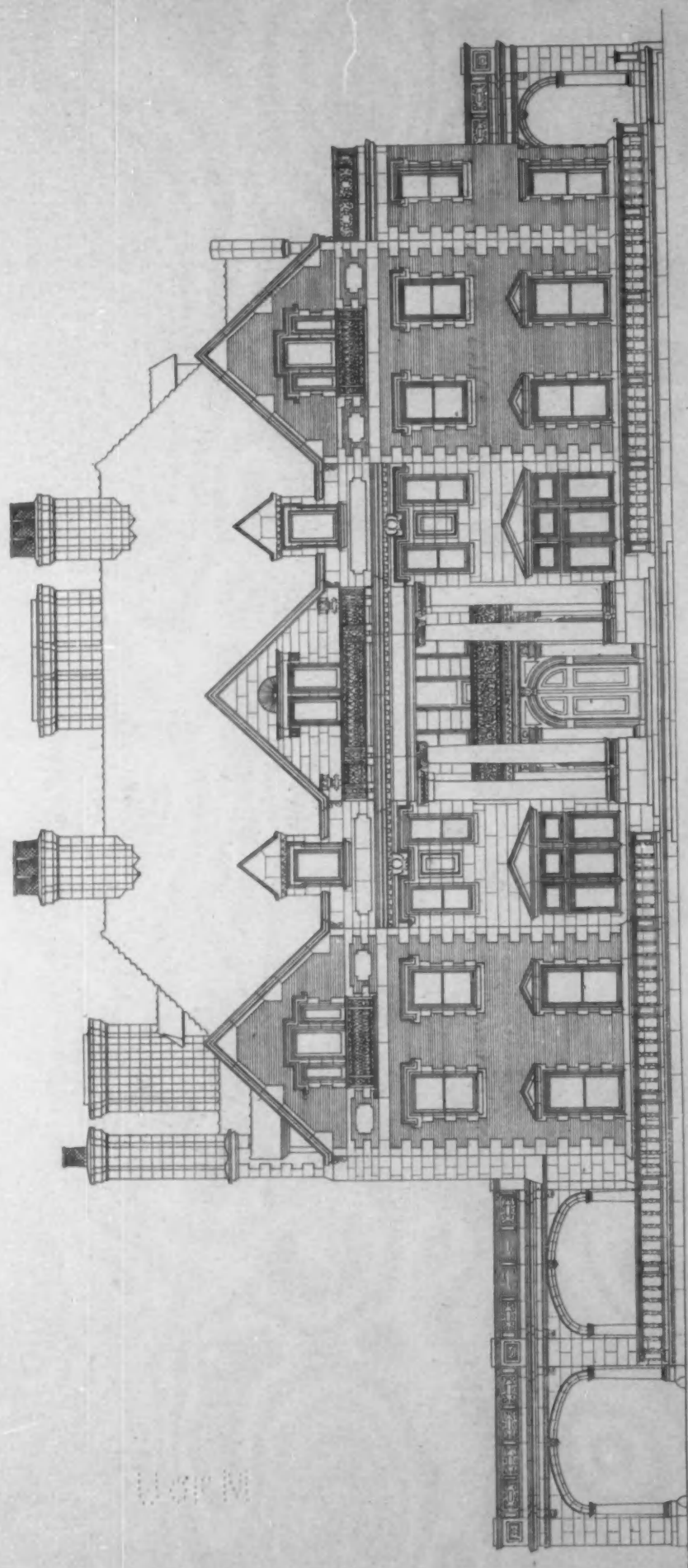




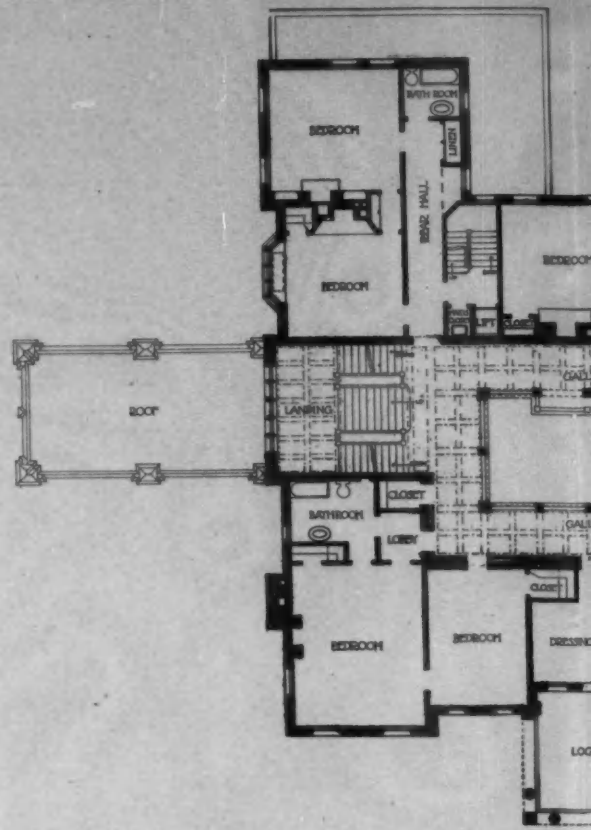




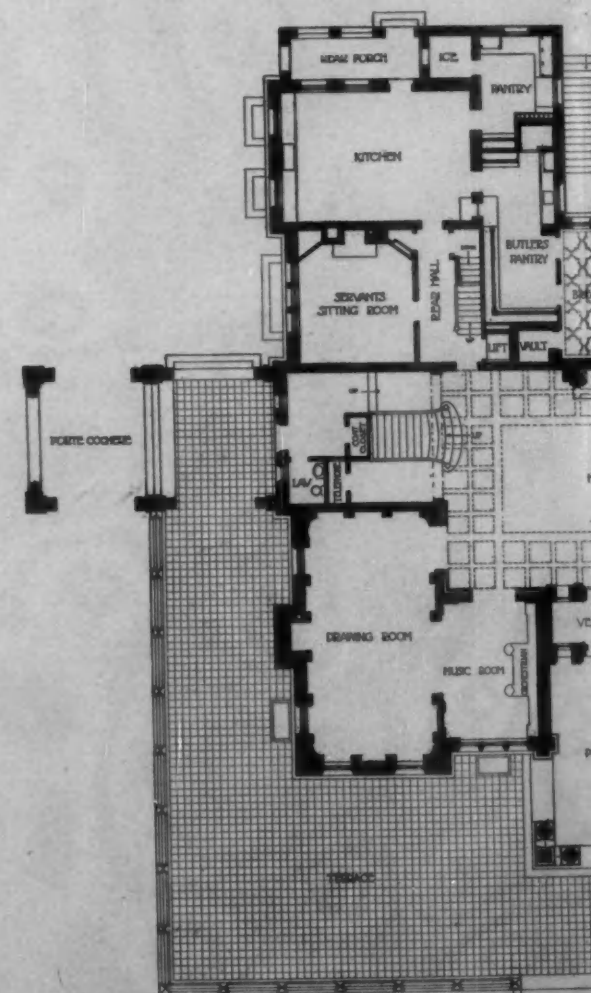




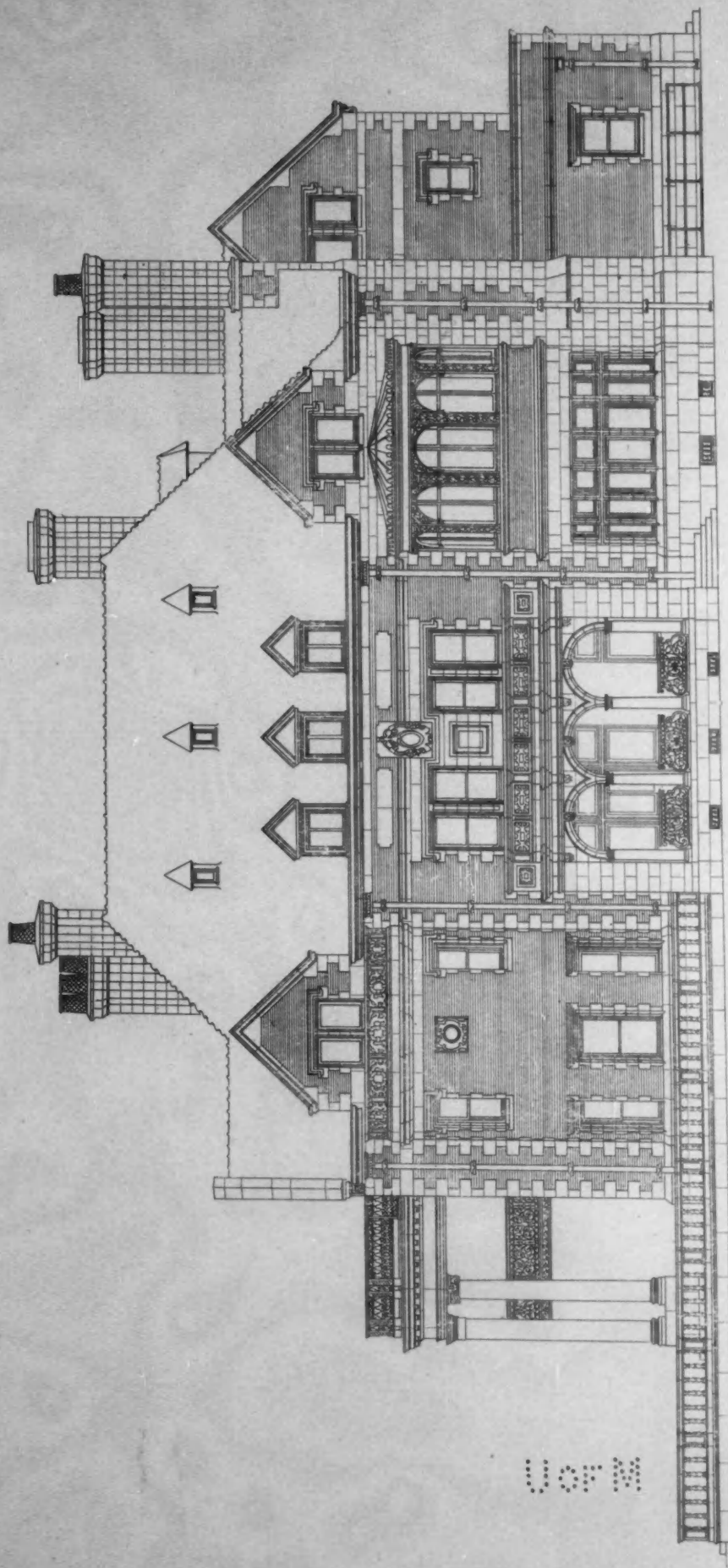
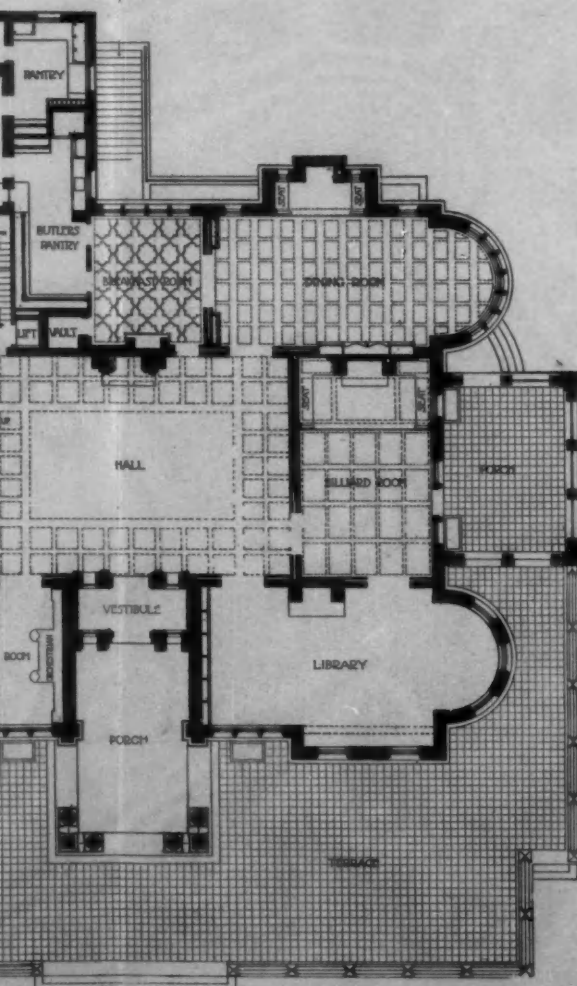
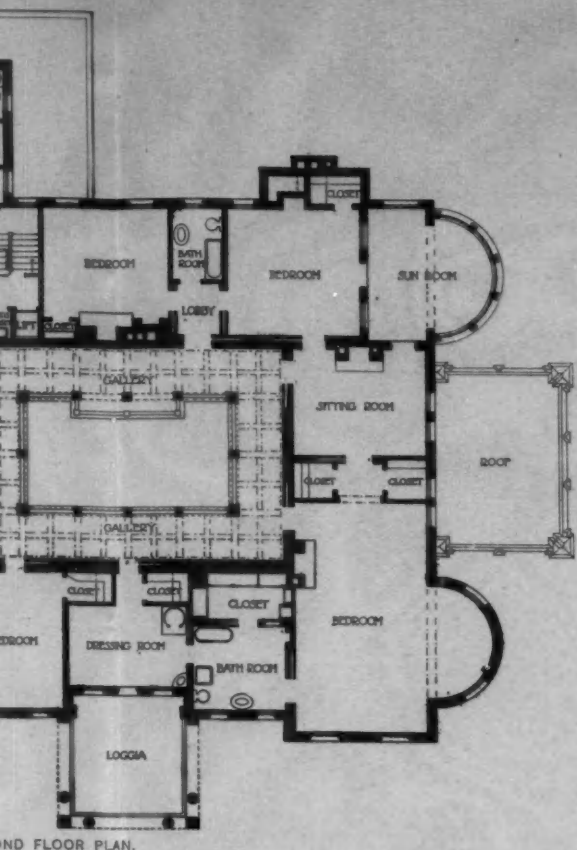
FRONT ELEVATION.



SECOND FLOOR PLAN.



FIRST FLOOR PLAN.



HOUSE, HIGHLAND AND WELLESLEY AVENUES, PITTSBURG, PA.  
ALDEN & HARLOW, ARCHITECTS.



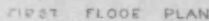
VOL. 11. NO. 11.

PLATE 83.



INDEX

- 01 James White
- 02 Druff
- 03 About Pericles
- 04 1-7: Main Contents
- 05 End Page
- 06 End Page
- 07 Stop Hagen
- 08 Zurich Index
- 09 Bookends
- 10 Master Read
- 11 Master Read
- 12 Start Page
- 13 Double Page
- 14 Copy
- 15 Transcribe
- 16 Inside Structure
- 17 Family, Family, Structure
- 18 Personal Index
- 19 Index: about index
- 20 Index: about index
- 21 Index: about index
- 22 Index: about index
- 23 Index: about index
- 24 Index: about index
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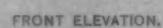
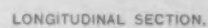
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 01 STOPS  
 02 Break Test  
 03 Head Position  
 04 Run Position  
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 06 Head Size  
 07 Run Speed  
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## VOL. 11, NO. 11.

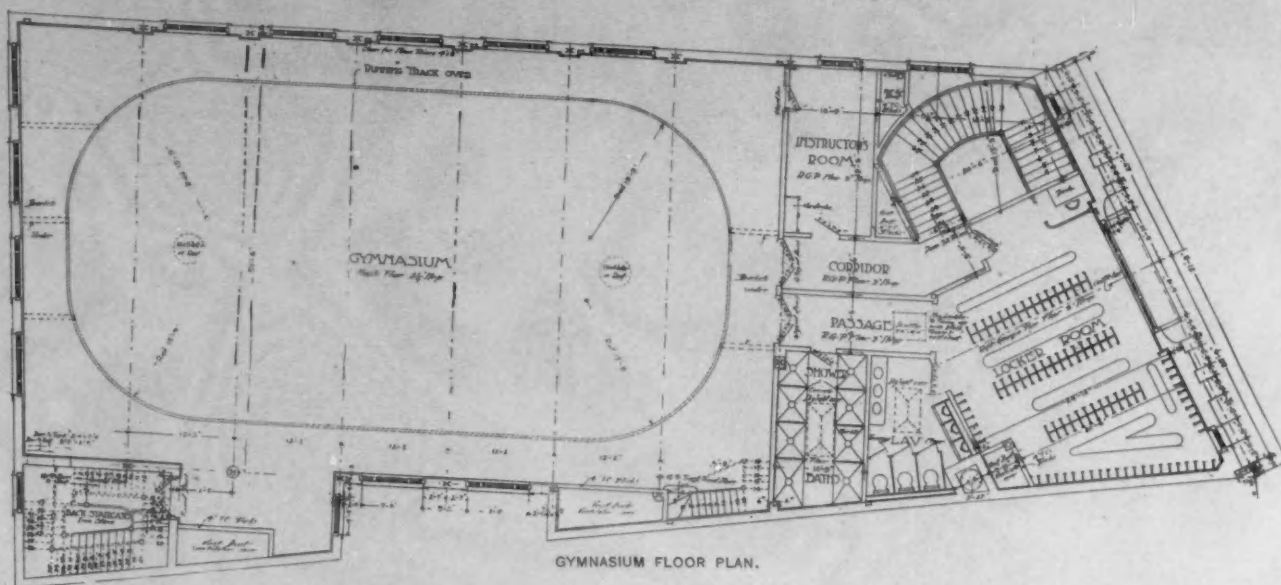
PLATE 84.



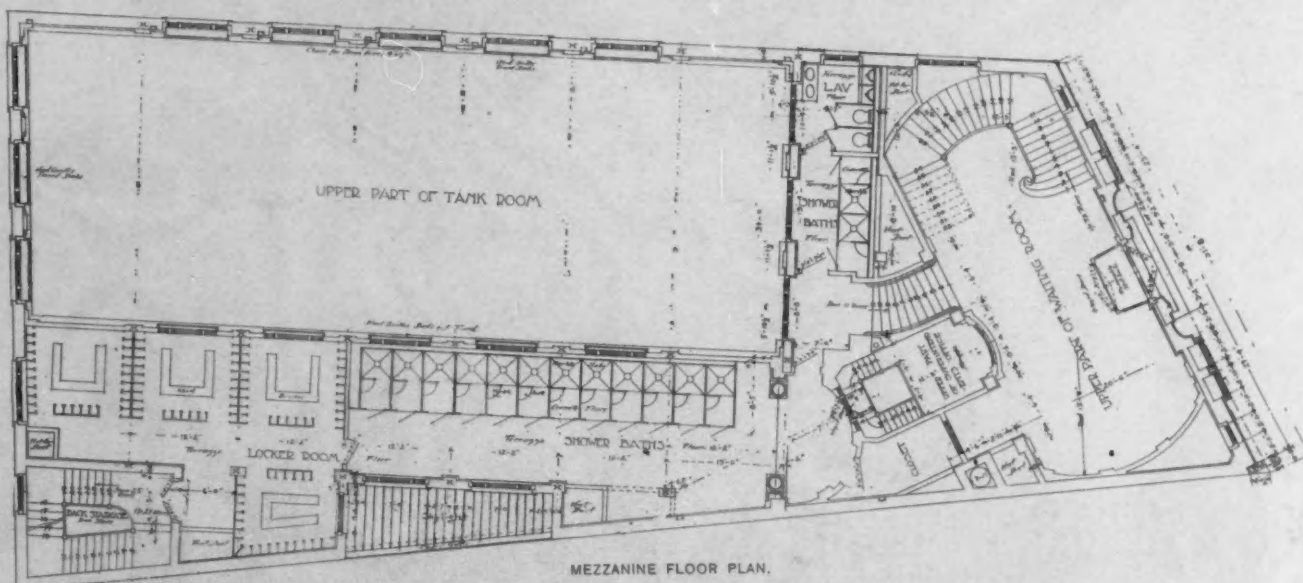
BATH HOUSE FOR THE CITY OF BOSTON.

HERBERT D. HALE, ARCHITECT.

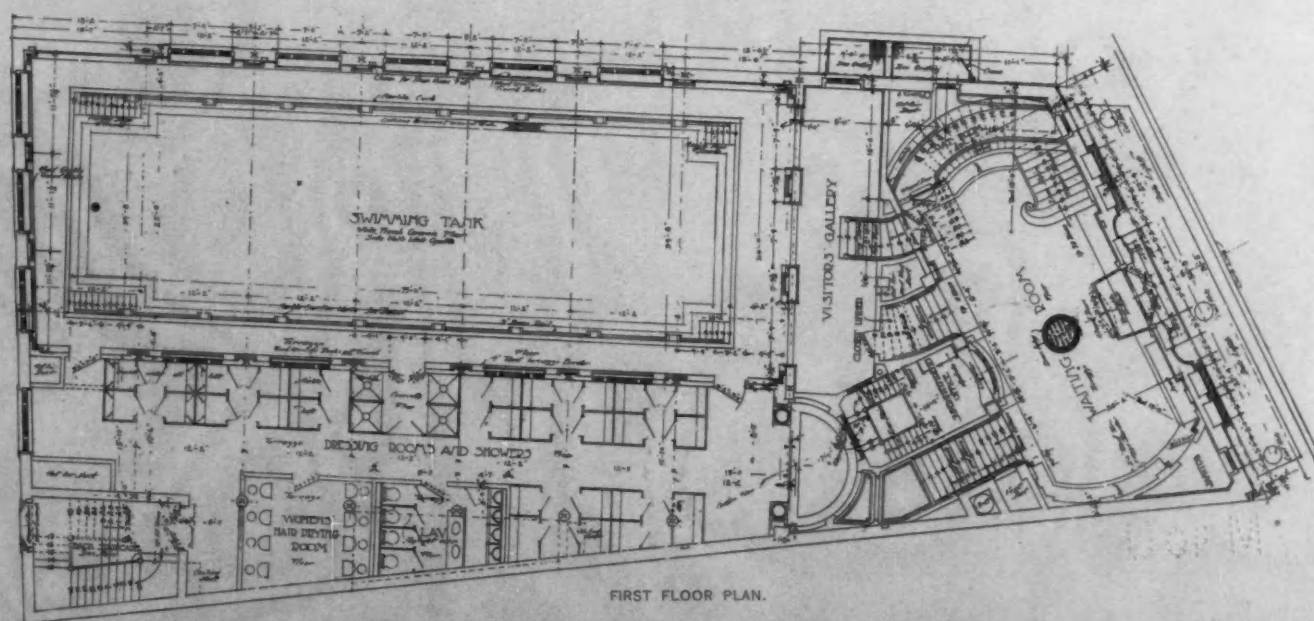




GYMNASIUM FLOOR PLAN.



MEZZANINE FLOOR PLAN.

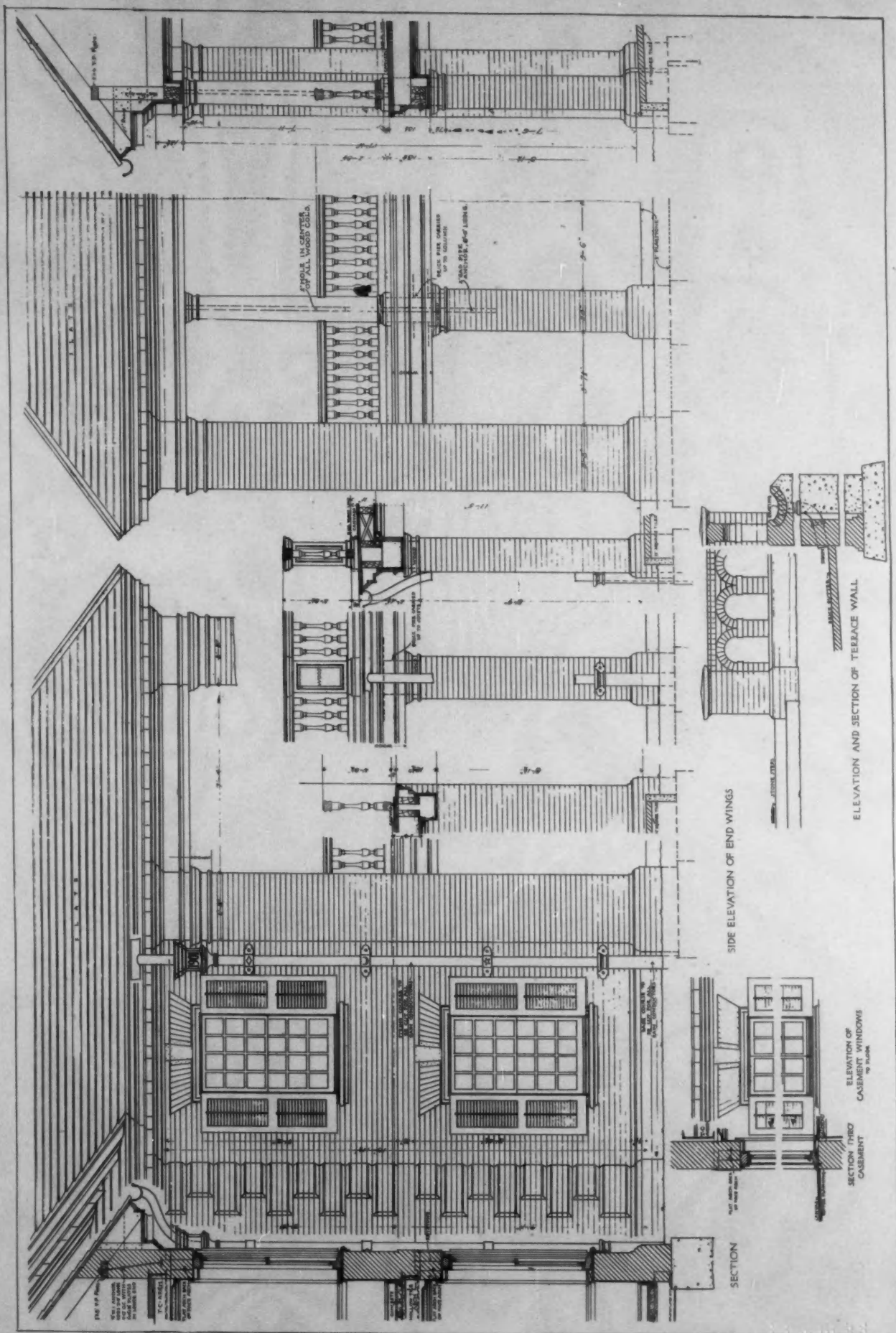


FIRST FLOOR PLAN.

BATH HOUSE FOR THE CITY OF BOSTON.  
HERBERT D. HALE, ARCHITECT.

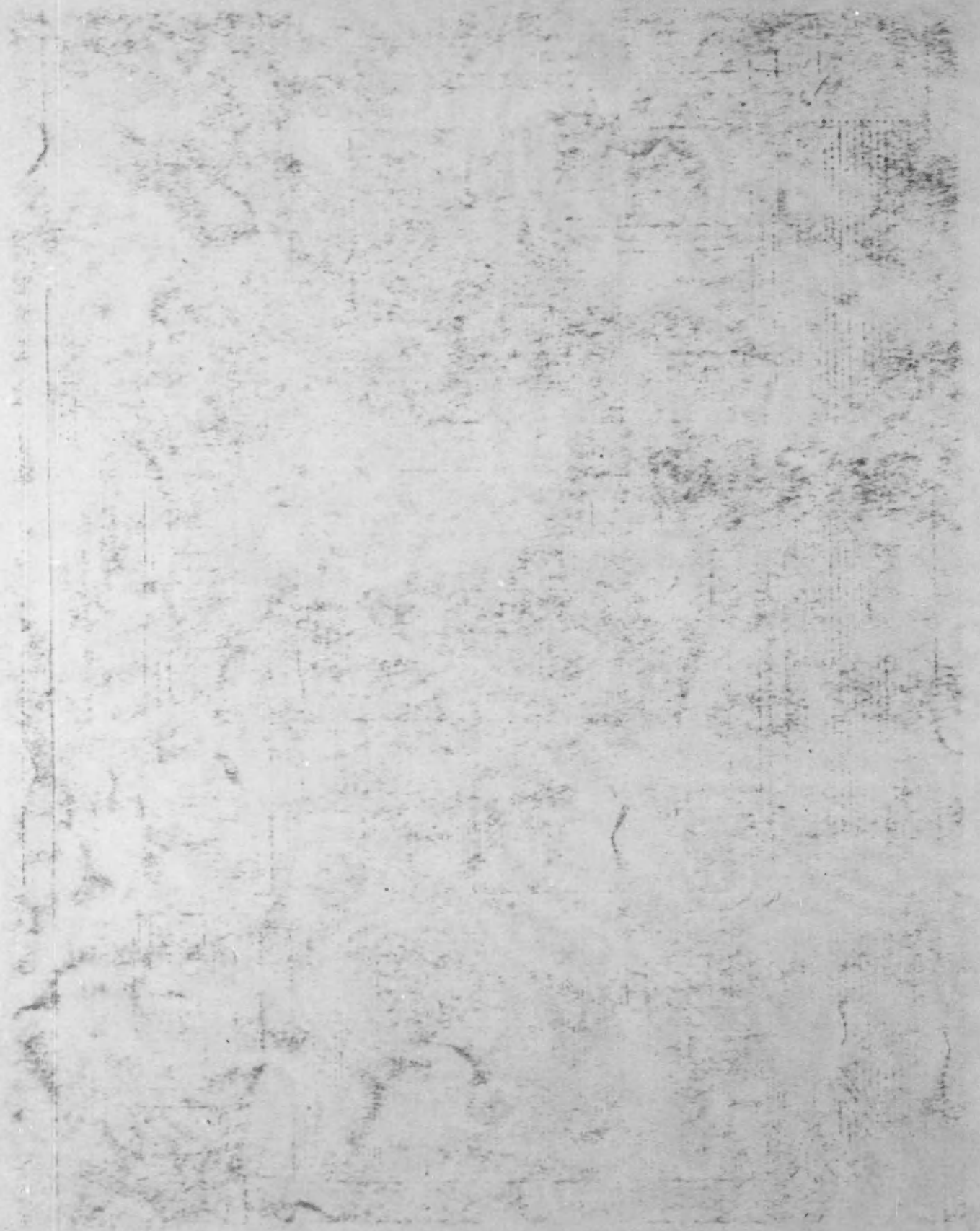


1901



DETAILS, THE LEAMY HOME, MT. AIRY, PHILADELPHIA, PA.  
COPE & STEWARDSON, ARCHITECTS.





UOLM





THE LEAMY HOME, MT. AIRY, PHILADELPHIA, PA.  
COPE & STEWARDSON, ARCHITECTS.

UfoM



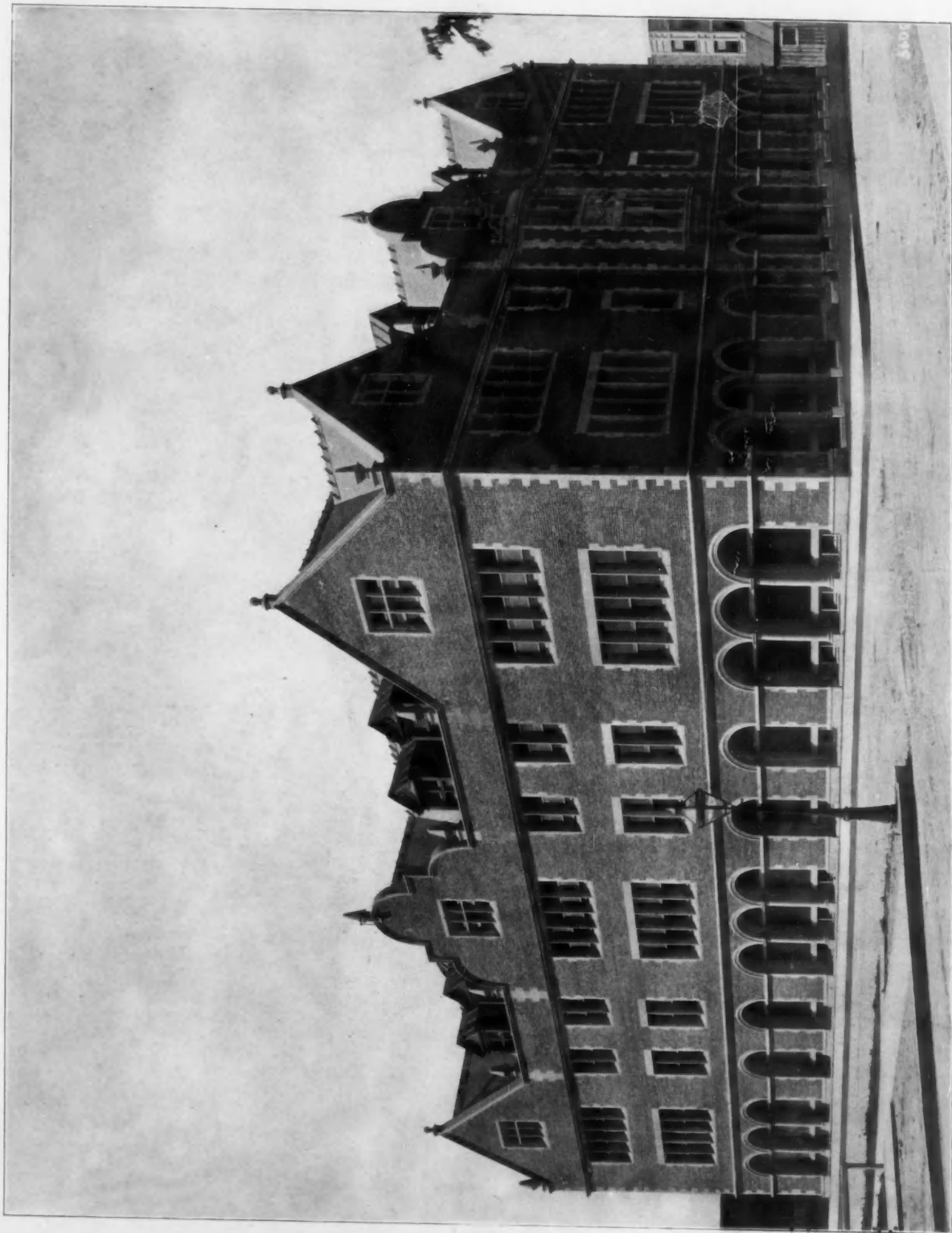
HOUSE, MOREWOOD PLACE, PITTSBURG, PA.  
RUTAN & RUSSELL, ARCHITECTS.



HOUSE, 4902 FORBES STREET, PITTSBURG, PA.  
ALDEN & HARLOW, ARCHITECTS.



106M



PRESS BUILDING, CHICAGO UNIVERSITY, CHICAGO, ILL.  
SHEPLEY, RUTAN & COOLIDGE, ARCHITECTS.

1904





HOUSE, 5050 FORBES STREET, PITTSBURG, PA. PEABODY & STEARNS, ARCHITECTS.

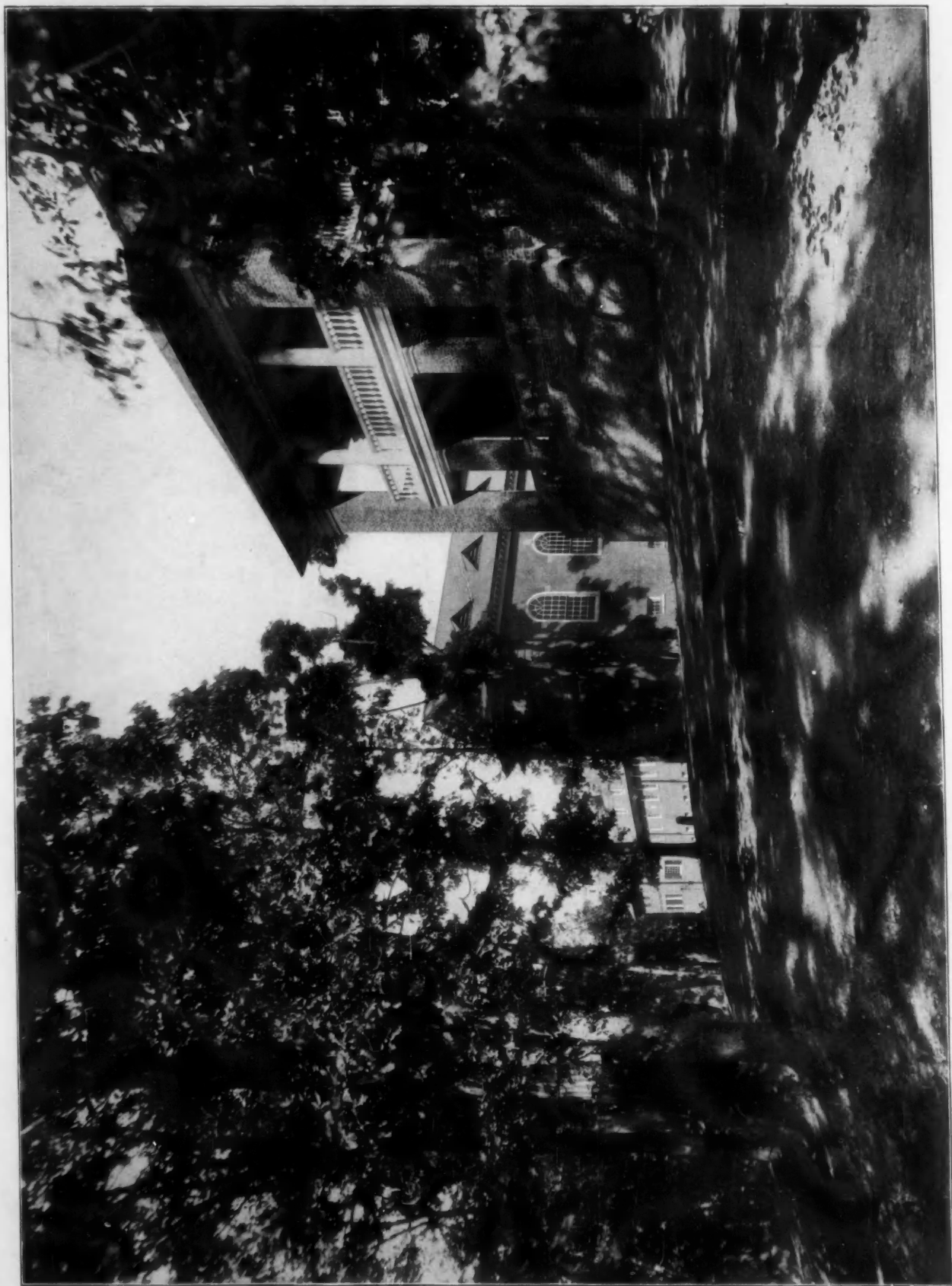


HOUSE AT SEWICKLEY, PA. ALDEN & HARLOW, ARCHITECTS.



HOUSE AT SEWICKLEY, PA. RUTAN & RUSSELL, ARCHITECTS.

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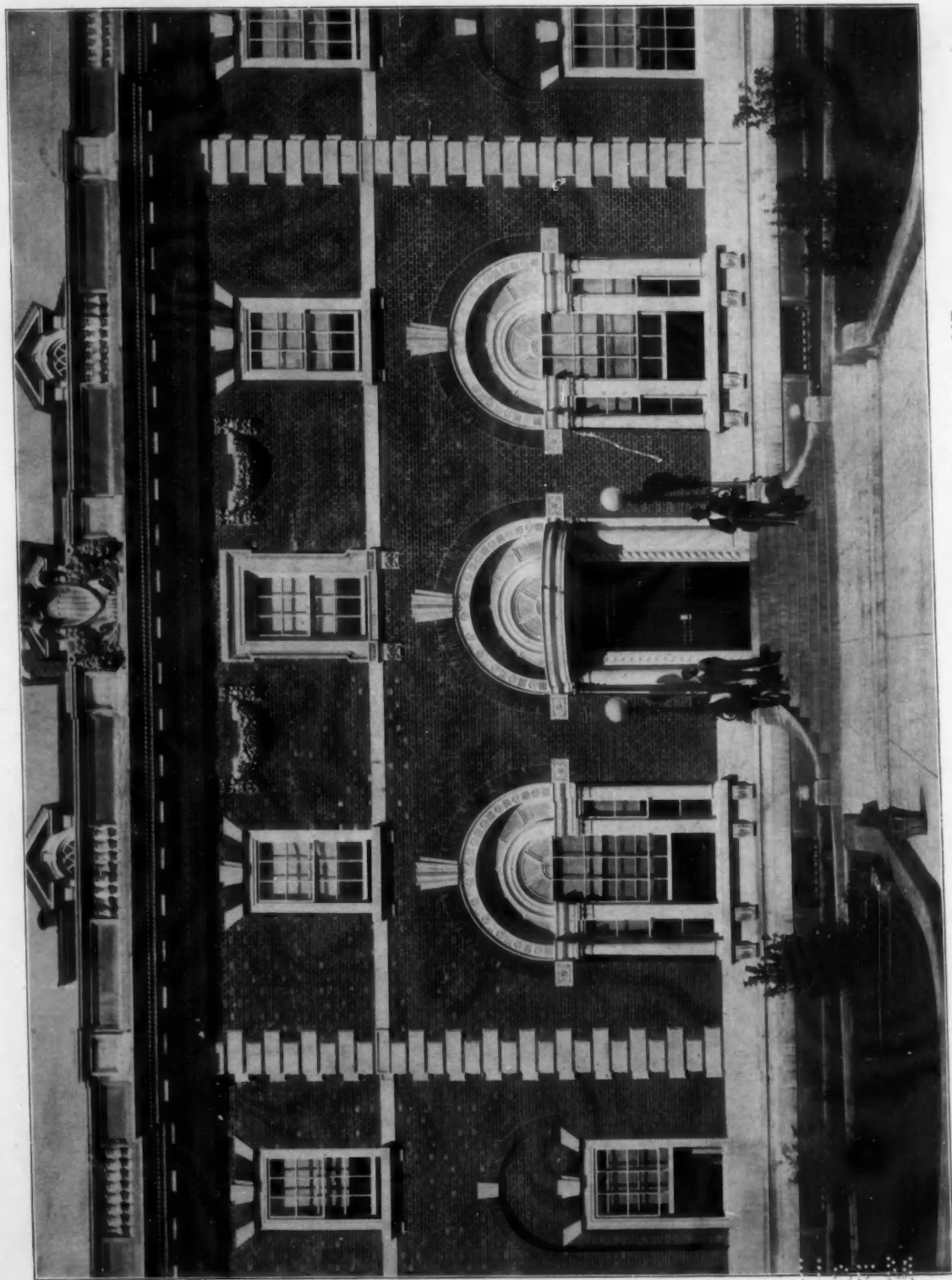


THE LEAMY HOME, MT. AIRY, PHILADELPHIA, PA.  
COPE & STEWARDSON, ARCHITECTS.

THE BRICKBUILDER,  
NOVEMBER,  
1902.



U 30 U



MAIN ENTRANCE OF U. S. POST OFFICE AT ANNAPOLIS, MD.  
JAMES KNOX TAYLOR, SUPERVISING ARCHITECT.